

DOCUMENT RESUME

ED 152 600

SE 024 166

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TITLE Environmental Education Activities of Federal Agencies.
INSTITUTION ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, Columbus, Ohio.; Massachusetts Univ., Amherst. Center for High School Philosophy.; Ohio State Univ., Columbus. Coll. of Education.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Feb 78
NOTE 174p.
AVAILABLE FROM Information Reference Center (ERIC/IRC), The Ohio State University, 1200 Chambers Rd., 3rd Floor, Columbus, Ohio 43212 (\$3.75)
EDRS PRICE MF-\$0.83 HC-\$8.69 Plus Postage.
DESCRIPTORS *Environmental Education; *Federal Government; Federal Legislation; *Federal Programs; *Program Descriptions; *Reports; Science Education

ABSTRACT

This report presents information on the environmental education objectives, activities, accomplishments, and plans of forty-four agencies of the Federal Government. The agencies were sent a short outline of what might constitute a useful report and asked to submit a report, in narrative form, of about 1500-3000 words. The agency reports contain an overview of the general mission of the agency, an indication of the levels of involvement in environmental education, history of involvement, target audience, methods used, citations of enabling legislation, funding, grants available, products and publications, measures of success, and future plans. It is hoped that this publication will help identify gaps and needless duplication in environmental education efforts at the Federal Government level. (Author/BB)

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ED152600

ENVIRONMENTAL EDUCATION ACTIVITIES OF FEDERAL AGENCIES

**Compiled and Edited
by
John F. Disinger**

in Cooperation with

**The Subcommittee on Environmental Education
of**

The Federal Interagency Committee on Education

Walter E. Jeske, Chairman

**The ERIC Center for Science, Mathematics,
and Environmental Education
College of Education and
School of Natural Resources
The Ohio State University
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February, 1978

SE 024 166

FEDERAL INTERAGENCY COMMITTEE ON EDUCATION

Mary F. Berry, Chair
Assistant Secretary for Education
U.S. Department of Health, Education, and Welfare

The Federal Interagency Committee on Education (FICE) was created by Executive Order in 1964 and operates under an updated mandate, Executive Order 11761, issued in January 1974. Chaired by the Assistant Secretary for Education, FICE's functions are to improve coordination of the educational activities of Federal agencies; to identify the Nation's educational needs and goals; and to advise and make recommendations on educational policy to heads of Federal agencies, to the Secretary of Health, Education and Welfare and through him to the President.

ENVIRONMENTAL EDUCATION INFORMATION REPORTS

Environmental Education Information Reports are issued to analyze and summarize information related to the teaching and learning of environmental education. It is hoped that these reviews will provide information for personnel involved in development, ideas for teachers, and indications of trends in environmental education.

Your comments and suggestions for this series are invited.

John F. Disinger
Associate Director
Environmental Education

Sponsored by the Educational Resources Information Center of the National Institute of Education and The Ohio State University.

This publication was prepared pursuant to a contract with the National Institute of Education. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or opinions do not, therefore, necessarily represent official National Institute of Education position or policy.

PREFACE

Among the tasks of the Environmental Education Subcommittee of the Federal Interagency Committee on Education is improved cooperation, coordination, and exchange of information among Federal agencies to meet our Nation's environmental education needs and goals. This report presents information on the environmental education objectives, activities, accomplishments, and plans of 44 different agencies, and is a first step toward identifying gaps and needless duplication at the Federal Government level.

We appreciate the assistance of the ERIC Clearinghouse for Science, Mathematics, and Environmental Education in compiling and printing this volume. It will enable ERIC and others to respond to requests for information received from people throughout the Nation and around the world. It should provide all agencies with a perspective on the type and extent of Federal Government efforts in environmental education. Several agencies have indicated that the exercise of preparing their reports provided the impetus to summarize and clarify their involvement in environmental education.

This report will help move us toward a coherent national strategy for environmental education that takes full advantage of the strength of our diversity. It can help us assure that essentials are provided, that resources are not squandered on redundancies, and that there is coordination of our efforts.

Mary F. Berry
Assistant Secretary for Education

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**ENVIRONMENTAL EDUCATION ACTIVITIES
OF
FEDERAL AGENCIES**

INTRODUCTION

One of the more intriguing aspects of environmental education is that so many agencies, institutions, organizations, and people have interest, and professional and personal stakes in it. "Environmental education" means many things to many people, is generally related in some way to their other interests and missions, and often occupies a position of some priority because the concept of "environment" cuts across nearly all disciplinary areas.

The basic mission of the Educational Resources Information Center (ERIC) of the National Institute of Education (NIE) is information flow in all areas of educational concern. Primary responsibility for environmental education has been assigned to the ERIC Center for Science, Mathematics, and Environmental Education (SMEAC) at The Ohio State University. Thus, SMEAC has a high priority in locating, processing, and making available information related to environmental education.

To accomplish this purpose, ERIC/SMEAC has developed working relationships with agencies, institutions, organizations, and people concerned with environmental education on any and all levels, both within and outside of typical "formal" hierarchies. Many of ERIC/SMEAC's activities are directed toward facilitating communication between, among, and even within such groups, so that information useful to environmental educators of all types and stripes will be available in appropriate forms. It has been, and continues to be, gratifying that significant levels of cooperation have been developed, maintained, and strengthened.

Many of SMEAC's activities are developed, and prioritized, by requests from field practitioners; that is, as numbers of requests for specific types of information mount, higher priority is assigned to developing products designed to meet these needs. A frequent request has been for information related to the environmental education interests, activities, and priorities of agencies of the Federal government, in convenient, readily accessible, form.

Discussions with the Subcommittee on Environmental Education (SEE) of the Federal Interagency Committee on Education (FICE) indicated that that group also was faced with similar requests, and was considering development of an appropriate response. It thus became apparent that the interests of FICE/SEE, ERIC/SMEAC, and other agencies, institutions, organizations, and people with which either office came into contact, would be well served by a cooperative effort.

Accordingly, a short outline (page 5) of what might constitute a useful report was developed and sent to Federal offices represented on the FICE Subcommittee on Environmental Education, as well as to other Federal agencies known to have interest in environmental education. The purpose of the outline was not to prescribe a rigid format, but merely to suggest types of information which interested parties might find of use. This volume represents the compilation of agency responses

to that request. Additional information has been included from the 1977/78 United States Government Manual* and from the 1977 Catalog of Federal Domestic Assistance** to fill in at least some of the gaps.

It is hoped that users of this volume will see it as a "first effort," not as an exhaustive compendium or as a polished product. Both FICE/SEE and ERIC/SMEAC are aware of the incompleteness of the volume, but feel that it represents an appropriate step in the direction of making useful information available to those who have need of it.

* Office of the Federal Register, National Archives and Records Service, General Services Administration, 1977/78 United States Government Manual. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977. Stock Number 022-003-00924-8, \$6.50.

**Executive Office of the President, Office of Management and Budget, 1977 Catalog of Federal Domestic Assistance. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1977. Library of Congress No. 73-600118, \$18.00.

RECOMMENDED OUTLINE FOR REPORTS:

ENVIRONMENTAL EDUCATION ACTIVITIES OF FEDERAL AGENCIES*

Purpose:

to prepare a convenient reference volume, useful to federal, state, and local governmental agencies, school personnel, higher education faculty and students, and interested citizens, which will provide an overview of the environmental education objectives and activities of appropriate federal agencies.

Each report to include (tentatively):

1. Overview of the general mission of the agency, indicating the objectives of its involvement in environmental education as related to its general mission.
2. Levels of involvement in environmental education—national, regional/local, etc.
3. History of involvement in environmental education.
4. Target audience(s) of environmental education efforts.
5. Methods/techniques/procedures utilized in environmental education.
6. Citations of enabling legislation, as appropriate.
7. Funding devoted/available to environmental education.
8. Grants available, as appropriate/available.
9. Products/publications related to environmental education.
10. Measures of success and/or lack of same.
11. Future plans related to environmental education efforts.

Format:

1. The above is not intended to be a rigid outline, but merely a suggestion as to what a report might include. Variations not only acceptable, but encouraged.
2. The report should be in narrative form, something on the order of 1500-3000 words.

*Editor's Note: This outline, with cover letter, was sent to each Federal agency from which a report was requested.

3. Use of tables-graphs-charts, etc., encouraged, as appropriate.
4. Without being so scholarly as to be deadly, reasonable attention to the niceties of English grammar is encouraged.
5. Objectivity is expected—neither whitewashes nor blatant PR.
6. Please do not submit agency publicity brochures or fliers in lieu of reports; the organization and tone of such materials are rarely appropriate for a compendium of this nature. However, it is likely that such already-prepared materials will be of material help as the report is prepared.

COUNCIL ON ENVIRONMENTAL QUALITY

Executive Office of the President
722 Jackson Place, NW
Washington, DC 20006

The Council on Environmental Quality (CEQ) is the part of the Executive Office of the President that provides the President with advice on environmental issues and assists him in developing and recommending policies which further environmental quality. The Council also oversees federal agencies compliance with the environmental impact statement provisions of the National Environmental Policy Act of 1969 (NEPA), coordinates environmental policies and activities that involve a number of government entities, and prepares the President's Annual Environmental Quality Reports to Congress as called for in NEPA.

While the Council has no specified function or budgeted responsibility in the area of environmental education, NEPA does call on it to conduct investigations, studies, surveys, research, and analyses relating to ecological systems and environmental quality; to document and define changes in the natural environment and to accumulate necessary data and other information for continuing analysis and the interpretation of underlying causes; and to report at least once a year to the President on the state and condition of the environment. The products of these responsibilities serve to increase the environmental understanding of a circle far wider than the United States Government.

CEQ's studies are distributed widely within the United States and abroad. The most well known examples are the annual Environmental Quality Reports, but a significant number of studies have been produced on such subjects as ocean dumping and oil spills, toxics and pesticides, land use, carcinogens, the economics of pollution controls, energy alternatives, water and air pollution, wildlife and natural environment, etc. Lists of its studies are available from CEQ; the individual studies can be obtained from the U. S. Government Printing Office and the National Technical Information Service of the Department of Commerce.

CEQ is represented on the Subcommittee on Environmental Education of the Federal Interagency Committee on Education and maintains an interest in national and international developments in formal and non-formal environmental education.

--- Submitted by:

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December 30, 1977

EXTENSION SERVICE *

Department of Agriculture
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Extension's leadership role and initiative in environmental education is based on its strengths and acceptance by farmers and rural people. It is "mission oriented" and works with its many audiences to "help them help themselves." This closeness to people and their problems has resulted in establishing confidence and trust, permitting the introduction of new ideas and technology. This philosophy and attitude requires new sources of expertise and information for new ideas and solutions. The way was pointed out for interdisciplinary approaches to problem solution. Extension has long been an advocate of the team approach and usually is involved in assembling the team.

Environmental problems and necessary educational programs have not bothered extension greatly because of its well-tested basic method of operation.

To be competitive and economically solvent, farmers have been forced to adopt new cultural, husbandry, and pest management practices. Extension programs in these areas have automatically included emphasis on environmental pollution control. Polluting the environment is costly and not consistent with good management practices emphasized in Extension's education programs.

Soil Conservation and Erosion Control

Most people recognize the general need for soil and water conservation. Few may not appreciate its significance to them personally. The wealth of a nation depends to a major degree upon the natural resources available to it, the determination and resourcefulness of its people, and the efficiency with which people manage resources for the common good. Future generations are entitled to a share of the rich natural resources of soil and water heritage with which the present generation was endowed.

The individual landowner or operator is concerned with maximum efficiency of operation. Efficient land use is a major factor in the amount of farm income. This income may determine whether the total effort represents a struggle for only the necessities of life or whether it will provide for the extras which increase the farm family's standard of living. A basic factor in this efficiency is using the land

**This report, written by W. R. Jenkins, Harold I. Owens, and Lawrence Heffner, was originally published in Environmental Education in Action-I: Case Studies of Selected Public School and Public Action Programs, published in 1977 by ERIC/SMEAC. It is reproduced here at the request of the Extension Service.*

within its capability and treating it to maintain or increase its productivity on a sustained yield basis.

Basically, the job of the Cooperative Extension Service is teaching. The final objective of Extension work is the enhancement of people's lives. Three distinct kinds of Extension responsibility exist in the areas of soil and water resource conservation:

1. We encourage all people to accept, as citizens, a feeling of responsibility and concern for resource conservation to the extent that they contribute individual efforts toward its accomplishment.
2. Individual farm families must be given practical help in developing and using the natural resources under their control. The goal here is to help develop expertness and responsibility in resource management.
3. Initiative must be provided in community and regional programs to develop expertness in group efforts at natural resource management. We can provide leadership, cooperation, and special knowledge to the groups. We can also bring experience in working with groups of people on public policies relating to the soil and water resources.

Soil and Water Conservation in the 1930's

In the 1930's, particularly the latter half, state Extension specialists and county Extension agents held method demonstrations across the country to show farmers how to construct soil and water conservation measures. In Carroll County, Missouri, the county Extension agent provided the leadership in building a set of terraces on a field in the Center Grove community. These were the first terraces built in the community and served as a demonstration to the neighboring farmers on how to protect the soil from water erosion.

Farmers were given assistance with planning and layout of contour lines, strip cropping, terraces, ponds, and other erosion control structures. County Extension agents worked as a team with Soil Conservation Service technicians, the Agricultural Stabilization and Conservation Service, incentive cost-sharing funds, and Civilian Conservation Corps personnel in establishing soil and water conservation demonstrations on complete farms.

It is essential that the farmer make a reasonable income while conserving and improving the soil and water resources. On these demonstrations farmers were given counsel on cropping practices, field arrangements, rotation of crops and soil fertility management, in order to produce higher value crops like alfalfa, and pasture management for the farm unit.

Extension Programs Change

Initially, Extension agents and specialists provided considerable on-site services in helping to plan and layout soil and water conservation practices to serve as demonstrations. Extension specialists and county Extension agents continued aggressive soil and water conservation educational programs during the 1940's, 50's and into the 60's. Gradually, the individual on-site assistance was turned over to Soil Conservation Service technicians, the ASCS staff, soil and water conservation contractors, and others who had received training in assisting farmers with conservation practices. Extension specialists and agents became increasingly concerned with area problems. Watersheds, river basins, soil and water conservation districts, and other soil and water districts received their coordinating talents.

Current Extension Role

Currently, the Extension programs continue to provide information which will encourage individual decisions which support the public as well as the private welfare. Since soil and water conservation relates to agricultural programs, this phase of natural resources is included under agriculture. Extension's agricultural programs in soil and water conservation emphasize:

1. Soil conservation, resource conservation, and other development districts.
2. Land use planning.
3. Watershed improvement.
4. Public understanding of conservation programs.

Extension work in soil and water conservation uses the conservation programs and technical services of other USDA agencies as much as possible, especially those of the SCS and the ASCS.

The broad objectives of Extension programs are:

1. To help landowners understand soil and water conservation problems, their effects on agricultural production and the general economy, and the need for cooperative action to solve them;
2. To help landowners understand the long-range planning for management and use of their soil and water resources and the economic alternatives available to them for developing these resources;
3. To assist landowners in cooperative planning for development of soil and water resources on a complete watershed basis;

4. To help the general public understand soil and water problems and support programs directed at solving them.

Youth Trained to Appreciate Soil

State Extension specialists and county Extension agents, in cooperation with SCS technicians, vocational agricultural teachers and others, train youth in the appreciation of the soil resource by teaching soil classification or "land judging." Land judging has become one of the most active youth educational projects. States conduct county, district, and state judging activities. States send land judging teams to the national event held at Oklahoma City each year. The 1976 event drew some 900 participants from 33 states.

Extension Education's Role with Federal and State Environmental Control Agencies and Regulations

The basic role of the Cooperative Agricultural Extension Service system is that of education through the dissemination or transfer of useful and practical information to decisionmakers and other potential users related to the agricultural community at local, state and federal levels. Accordingly, Agricultural Extension's role with environmental regulatory agencies is that of educational cooperation to provide objective, factual information to the agricultural community and other audiences on evolving environmental regulations at federal, state, and local levels, and to identify farmers' options in adjusting to them.

Through informal educational coordination with other agencies, Agricultural Extension Services also assist in the development of reasonable, practical environmental regulations for the maintenance of optimum national food and fiber production and the enhancement of related environmental quality at local, state and national levels. However, Agricultural Extension Services avoid activities which might be construed as essentially regulatory in nature and intent.

Prior to the creation of the national regulatory U.S. Environmental Protection Agency (EPA) in 1970, the Cooperative Agricultural Extension Service system (CES) had for many years conducted educational programs for environmental quality improvement in agricultural problem areas such as soil and water conservation, animal and crops waste management, animal and plant disease management, and pest management.

Since then, CES has strengthened environmental quality protection programs at federal, state and local levels through coordination with the Extension Committee on Organization and Policy (ECOP), EPA, other federal and state agencies, and the agricultural community. Examples of such coordination are:

Cooperative CES-EPA pesticide safety and pest management programs in recent years throughout many states.

Cooperation with the Universities-EPA-USDA coordinating committee to identify research and educational needs and priorities for various environmental problems. Resulting from this coordination were jointly sponsored national and regional conferences on Recycling Municipal Sludges and Effluents and Effluents on Land in Champaign, Illinois, in 1973, and Educational Needs Associated with the Utilization of Wastewater Treatment Products on Land in East Lansing, Michigan, 1974.

Development of an ECOP strategy report on A People and Their Environment, analyzing ten environmental issues, with recommendations for strengthened federal-state-local CES programs to assist in their resolution.

Development of a national EPA-ECOP cooperative workshop on Agricultural Nonpoint Source Water Pollution Control, held in Washington, D.C., 1974.

Cooperation with EPA, other agencies and the concentrated animal feeding industry in the development of reasonable and practical regulations for the control of related point source water pollution. This cooperation had been preceded by a six-state CES pilot project for the development of educational information to assist the cattle feedlot industry in the Great Plains to conform with evolving local, state, and federal regulations.

To further strengthen USDA coordination with EPA and other agencies in the development of mutually constructive environmental programs at federal, state, and local levels, the U.S. Secretary of Agriculture established USDA work groups for the following environmental laws in 1976: Federal Water Pollution Control Act; Federal Insecticide, Fungicide, and Rodenticide Act; Solid Waste Disposal Act; Occupational Safety and Health Act; Toxic Substances Act; Clean Air Act; Clean Drinking Water Act; and Endangered Species Act. The Extension Service is represented on each of these work groups in coordination with representatives of other USDA agencies.

Through cooperation with these work groups, ES-USDA is in a position to inform State Extension Services of evolving developments in implementing these laws and to cooperate with ECOP, EPA, and other agencies in the development of related, constructive Extension educational programs.

A current example of such cooperation is the development in some states of Extension educational programs to coordinate with other federal, state and local interests on areawide waste treatment management plans to improve control of nonpoint and other sources

of water pollution from agricultural lands. As most agricultural sources of water pollution have been designated by EPA to be non-point in origin, management of such pollution sources will command increasing attention in the future.

Extension Programs in Animal Waste Management

Educational programs on handling animal wastes (manure) originated with Extension agronomists and soils specialists. The purpose was to help farmers improve the fertility and tilth of soils and increase crop yields. While the objectives were related to crops, animal wastes were utilized and relatively non-polluting.

However, modern animal and poultry production, based on years of improved technology, has resulted in great livestock, dairy, and poultry concentrated operations. The increased emphasis and ease of using commercial fertilizers, coupled with the development of the large animal and poultry production units, have changed the picture drastically.

Farmers lost interest in the use of manure to increase fertility of soil because of difficulty in handling and higher costs related to benefits. Crop production practices changed to emphasize use of inorganic fertilizers, with little emphasis on utilization of animal wastes.

The change in attitudes, cultural and husbandry practices, concentration of large specialized poultry and animal units (many near large population centers), economic squeeze, and emphasis on environmental quality again forced drastic changes in Extension programs.

In order to counter charges of nuisances (odors, dust, flies, etc.) and to comply with pollution control regulations, livestock, dairy, and poultry producers have in recent years been faced with serious problems not experienced before the days of large specialized animal production units.

The evolution of Extension environmental education programs has been, progressively, directed toward animal pollution, waste disposal, waste utilization, waste management, and waste recycling. As the economic and regulatory changes have arisen, new technology and educational programs have been required. The shifts have been most dramatic in an effort to help animal production units meet the changing, many-faceted situations they face.

Any effort to solve animal waste management problems must fall within the parameters of economics, technology, legal limits, social situation, and political climate. Each one singly and in relation to each other prevents a simple approach to the problem of controlling environmental pollution by the animal industries including processing plants, slaughter houses, and feed mills.

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Special Extension efforts to identify and organize needed expertise in animal waste management were started with a National Symposium on Poultry Waste Management in 1963, at Lincoln, Nebraska. The idea of planning and conducting the conference originated with concerned Extension specialists in poultry and agricultural engineering. In 1964, a follow-up conference covering the same subjects was held in Lincoln. The proceedings from these poultry conferences have served as the bases for greatly expanded Extension efforts in animal waste management.

Extension has been highly involved in planning and development of International Symposia on Livestock Wastes in 1966, 1970 and 1974. Many state and regional conferences are conducted each year in order to expose new technology, and methods of controlling pollution through better means of utilizing animal and poultry wastes.

State Extension personnel are conducting field trials, tests, and problem-solving activities in most states on problems related to animal production and processing and environmental pollution.

The real benefit of Extension's activities in these programs has been to attract the attention of research institutions and other organizations. As a result, a great many research and government resources are now being directed toward solving animal industry problems related to environmental quality.

4-H — YOUTH PROGRAMS

*Science and Education Administration--Extension
U.S. Department of Agriculture
Washington, DC 20250*

4-H is the youth program of the Cooperative Extension Service. The Science and Education Administration--Extension in the U.S. Department of Agriculture provides national leadership for 4-H youth programs and the State Extension Services and the state land-grant universities give state leadership. 4-H programs are carried out locally by volunteer leaders under the guidance, supervision and training of county Extension professionals and paraprofessionals representing land-grant university systems. The National 4-H Council, a private support organization, assists the Cooperative Extension Service in carrying out a number of programs in behalf of 4-H.

Authority for the 4-H program was provided with the passage of the Smith-Lever Act of 1914 and subsequent amendments which established the Cooperative Extension Service. The Agricultural Act of 1977 encompasses the authority of the Smith-Lever Act and its amendments.

The overall mission of 4-H is the development of youth so that they contribute responsibly wherever they live. Through informal, practical, learn-by-doing educational projects and activities in agriculture and natural resources, home economics, community development, and related areas, 4-H helps youth establish real-life goals and become competent, productive citizens. Today's 4-H program is for all youth--rural and urban--from all racial, cultural, economic, and social backgrounds. Youth participate in 4-H as members of organized 4-H Clubs and in 4-H special interest groups, through the 4-H Expanded Food and Nutrition Education Program primarily for low income city youth, or as participants in 4-H instructional TV program series. 4-H is located in all states, the District of Columbia, Puerto Rico, Virgin Islands, and Guam.

The interest of the private sector--the many business and industry leaders who provide resources of money, personnel and materials in behalf of 4-H--is evidence that 4-H is a highly regarded and valuable educational program for the youth of America.

Over five million youth are currently participating in 4-H youth programs, with over 25 percent of these youth coming from minority groups. About 570,000 volunteer local leaders assist in carrying out 4-H programs.

Through local 4-H Clubs and 4-H special interest groups, 4-H youth enroll in educational projects covering a wide variety of topics. The number of projects available to youth vary from ten project areas in some states to a curriculum of over 100 in others. These projects include such subjects as Animals and Poultry, Conservation of Natural Resources, Ecology and Environment, Plant Science, Gardening, Community Development, Safety, Energy Conservation, Nutrition, Health, Consumer Education, Home Management, Small Engines and others. Over the years, projects in conservation of natural resources have been important 4-H project offerings.

Last year, 4-H'ers enrolled in over 8.7 million educational projects --an average of 2.2 projects per member. It is interesting to note that projects in the area of Ecology and Natural Resources showed the largest increase in enrollments over the previous year, and now total 778,005 youth. This increase occurred in spite of an overall decrease in staff resources due to inflation and other high costs.

Listed below are the enrollments in Ecology and Natural Resources Projects for FY 77:

Ecology and Environment (General)	100,670
Air and Climate	18,933
Outdoor Education	66,852
Geology and Minerals	17,714
Entomology	51,053
Bees	21,835
Conservation of Natural Resources (General)	138,510
Soil and Water Conservation	24,728
Forestry, Forest Products	98,469
Wildlife, Wildlife Conservation	165,601
Marine Science, Aquaculture, Fish	45,816
Miscellaneous Ecology, Natural Resources Projects	27,764

In addition to the projects listed above, others such as safety, community development and traditional agricultural and home economics-type projects also teach concepts and principles that have environmental impacts. Approximately half of the states have community pride programs in which groups of members, with the support of the business community, develop a plan for community improvement and work toward accomplishing that plan. 4-H camping programs offer another important method for reaching youth with environmental education. In Utah, for example, nearly every county in the state reported a camping experience for 4-H youth last year, ranging in length from one to three days. Most camps had a curriculum which featured some aspect of environmental education. Last year, some 4,800 4-H members attended 4-H camps in Utah, with 800 volunteer leaders participating. Similar 4-H camping programs are held in all states, with a total participation last year of over 400,000 youth.

In recent years, Environmental Education Programs have received special emphasis in 4-H, largely as the result of increased national concern in this area. Two major national 4-H goals statements prepared during the past ten years have called for increased attention to programs in environmental improvement and ecology. 4-H in Century III, the national 4-H policy statement issued recently, notes that youth of today want a meaningful role in alleviating national concerns for the environment and need opportunities to:

1. become involved in individual and group projects which contribute to environmental improvement,
2. provide initiative and leadership in a wide range of environmental improvement efforts conducted by local, area and state environmental organizations and agencies,
3. explore careers and educational opportunities in environmental-related fields, and
4. become gainfully employed in furthering the development and maintenance of natural resources.

This national 4-H policy statement, now being implemented in all states, has recommended that "4-H environmental improvement programs must have high priority and resource allocations must be commensurate with the needs. Program emphasis should be placed on building understandings of ecological principles and the relationships of man and his environment; contributing to solutions to the problems; and sharing citizenship responsibilities to optimize environmental resources."

To assist in implementing this recommendation, a National workshop on Environmental Improvement was held in January, 1977, at the National 4-H Center, to train State 4-H staff and subject-matter specialists in developing more extensive and intensive 4-H environmental improvement programs and to provide states with innovative models of 4-H environmental improvement programs. In addition, workshops and training conferences are being held in many states to train county professional staffs, youth and volunteers in environmental education.

The National 4-H Awards Program, conducted by the National 4-H Council in cooperation with 4-H donor support, has for many years provided scholarships, trips, and other incentives to youth enrolled in conservation of natural resources and community beautification.

Funds have also been made available through 4-H donor support to three states to conduct innovative projects in environmental improvement. Virginia's program related to energy management as it affects our environment. Emphasis included energy resources conservation and environment. North Carolina's program focused on an intensive leader training program designed to increase member and leader participation in the environmental improvement area. New York developed educational aids to support the comprehensive Environmental Awareness Program

currently being implemented by the Northeast Regional 4-H Environmental Sciences Committee. Through this program, 4-H youth explore their relationship to five specific environmental areas of forests, inland waters, city and town, farm and marine. Models developed from these three states are now being used in other state 4-H programs.

Other examples typical of 4-H environmental education and conservation efforts in many states are:

- In Mississippi, a basic environmental awareness program was developed for 4-H designed to teach youth about the ecology system and how it is maintained. Specific lessons in air and water pollution and solid waste disposal provide youth with information and learn-by-doing experiences that relate to environmental quality and conservation of natural resources. More than 12,500 Mississippi youth participated last year in 4-H conservation activities and projects.
- At present, there are 16 4-H forests throughout Florida which allow 4-H'ers to participate in forestry activities and careers related to forestry. St. John's County 4-H Forest serves as an example where members pre-commercially thinned several acres of natural growth-slash pine.
- Also in Florida, a 4-H Marine Education Program has grown in three years to one ranking first in size in the nation this past year. Several thousand Florida youth are participating in 4-H marine science projects and activities.
- Wisconsin reported that 45,000 4-H members in 1,500 Wisconsin 4-H Clubs helped clean up, protect or conserve some environmental aspect of their communities last year. 4-H members in one club in Sheboygan obtained support of local landowners in setting aside unused land as "Acres for Wildlife." Cleaning up township roads and local streams were also activities in several clubs. In Milwaukee, over 2,000 city youth each year take 4-H nature education classes, workshops and field trips at the local Nature Center.
- In Michigan, an innovative statewide 4-H program called "Challenge" is proving to be a major vehicle for teaching ecology and natural resources subject matter. The program includes outdoor survival, caving, climbing, canoeing, cooking, nutrition, etc. Regional training teams made up of certified volunteers are the nucleus of this program.

4-H project manuals for youth and volunteer leaders are prepared in most cases at the state level by Extension specialists. Most states would have such manuals for use in 4-H environmental education and conservation programs. These are available through the State 4-H offices at the state land-grant universities.

The Northeast States have developed a 4-H Environmental Awareness Handbook for volunteer 4-H leaders with an accompanying set of slides and tapes illustrating each of the environments discussed in the handbook. North Carolina prepared a notebook to be used by volunteer 4-H leaders in working with youth in environmental education. Subjects included energy, forestry, marine science, soil resources, water conservation and wildlife. Materials developed included program implementation guides, educational programs related to the specific areas, lists of resources, project suggestions, and evaluation procedures.

Some project materials for youth and leaders are also developed at the national level through National 4-H Program Development Committees in cooperation with the National 4-H Council. The recently-developed national forestry manuals for youth and volunteer leaders are available from the National 4-H Council, 150 N. Wacker Drive, Chicago 60606.

Grants for special projects in environmental education are not available through Smith-Lever Act funding of 4-H - Youth Programs. Some assistance is available to Extension professionals and volunteer leaders in the form of internships on a limited basis through the National 4-H Council (Washington D.C. office), 7100 Connecticut Avenue, N.W., Washington, D.C. 20015. As recommended by 4-H in Century III, 4-H will continue to give high priority to environmental education programs at all levels.

--- Submitted by:

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December 30, 1977

FOREST SERVICE

*Department of Agriculture
Washington, DC 20250*

The environmental education activities of the United States Forest Service are tied, through a series subsequent Acts to the original Department of Agriculture Organic Act which authorizes the dissemination among the people of the United States of useful information on subjects connected with Agriculture in the most general and comprehensive sense of the word.

Specifically, authorizations and directions for involving the public in environmental education type programs are found in the Solicitor's Opinion 4088 (1942); the McSweeney-McNary Act 45 Stat. 699, as amended; 16 U.S.C. 581, 581a, 581a-1, 581b-581i; The National Environmental Policy Act of 1969 (83 Stat. 852; 42 U.S.C. 4321, 4331-4335, 4341-4347); The Smokey Bear Act of 1952 (66 Stat. 92; 18 U.S.C. 711, 711 Note; 31 U.S.C. 488a.); The Woodsy Owl Act of 1974. (88 Stat. 244; 31 U.S.C. 488b-3); and annual agriculture appropriations bills. Stripped of official language and rhetoric the consensus of these authorizations is that the best protection for both publically and privately owned and managed resources is a public that understands environmental interrelationships and is motivated to participate in activities to improve the quality of the total environment.

The involvement of the Forest Service in educational activities closely parallels the history and transition of the agency from the role of a simple caretaker of Forest Reserve for future use to an active manager of all of the resources, goods and services related to National Forest lands and, through the Divisions of Research and State and Private Forestry, the resources of others who request assistance.

There are two primary focal areas for Forest Service environmental education. Although there is considerable overlap they are different enough to be easily distinguishable.

CONTENT: There can be no education without content. The research and management programs of the Forest Service have developed an extensive library of factual material on all aspects of environmental management. These range from simple popularized pamphlets to vast accumulations of scientific data. These are distributed, often free of cost, to the public through the mail, and to field offices and cooperating agencies and organizations. In addition to this there are many seminars, training sessions and workshops held nationwide to move this factual information into the stream of public consciousness. As the demand for this information increases along with the interest in all phases of environmental management, this portion of the program also increases in importance.

PROCESS: Educational content is sterile without a process of dissemination. The emphasis on environmental education in the last ten years found many educators both within and without the organized school systems, unprepared to deal with the subject matter. In order to help educators meet their needs an integrated program of teacher education was begun around 1970 titled "A Process Approach to Environmental Education". The program includes a wide variety of lesson plans and teaching aids grouped loosely in the "Investigating Your Environment" series. Organized "Process Approach" workshops for educators and resource managers throughout the country. Both the materials and the workshops are designed to be open-ended and to encourage the active participation of educator with student in the collection and evaluation of environmental data, the formulation of predictions and hypothesis, the validation of these predictions and the application of results to existing environmental problems. The fact that the program does not "sell" a particular management ethic but promotes the ability of the individual for self thought has made it quite popular since it will go with and enhance most other existing curriculums and programs. The demand for these workshops has exceeded the ability of the Forest Service to meet the need. Because of this, teams and individuals from cooperating agencies and organizations are being trained to produce similar workshops for their own zone of influence.

The Smokey Bear and Woodsy Owl programs are treated as basically separate entities although both have missions in environmental education. The Smokey Bear program deals primarily with the dangers of unplanned and uncontrolled wildland fires while Woodsy Owls is concerned with environmental quality both in urban and rural areas. Both of these programs have a variety of teaching aids and campaign materials.

Like other informational activities, environmental education is a "non-funded function." There are no appropriations for its support and it subsists on funds contributed by those activities that do receive appropriations. Each of the nine administrative regions and the Northeastern and Southeastern Divisions of State and Private Forestry develop their own budget based on the funds available and work to be done in that area.

Grants, as such, are not available. Cooperative agreements for education research between the Forest Service and various educational institutions are authorized under the terms of the Act of December 12, 1975 (16 U.S.C. 565a-1-3).

Future plans call for continuing the existing environmental education programs and expanding them by developing a new program at the Pinchot Institute for Conservation Studies in Milford, Pennsylvania. The Pinchot Institute is located at Gray Towers, the home of Gifford Pinchot, conservation leader, politician, friend of Theodore Roosevelt and first Chief of the Forest Service.

Although the institute will aid in all three of the Forest Service missions—Research, State, and Private Forestry, and management of the National Forest system—it was recognized that the universal appeal and prestige of Grey Towers went beyond the Forest Service. Therefore, the programs must be national in scope, must involve other agencies, and must be neutral. Neutrality must be the basis from which people from all backgrounds and philosophies can freely exchange ideas.

With these considerations in mind the goals set for this new part of the program are to:

1. Initiate a coordinated program to make the Institute a focal point of development and dissemination of conservation knowledge through symposia, conferences and publications.
2. Develop visitors information services on the site that interpret Pinchot's philosophy and contributions to conservation and relate them to the present and future of resource management.
3. Develop techniques for monitoring technology and transferring knowledge, such as research findings, into forms that resource managers and the public can use on a day-to-day basis.
4. Develop innovative curricula to increase the quality and the scope of environmental education, through both formal and informal education systems, as a means for increasing citizen understanding of resource management.

---Submitted by:

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December 9, 1977

SOIL CONSERVATION SERVICE

*Department of Agriculture
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Soil Conservation Service (SCS), a nationwide, multidisciplinary technical action agency, is part of the United States Department of Agriculture. Some 3,000 local offices of SCS in cooperation with locally controlled conservation districts are responsible for providing natural resource data, interpretative information, and on-site technical and other help to individuals and groups for preventing and solving problems of land use and conservation management of soil, water, and related resources. To give appropriate help on environmental improvement and protection, SCS employs biologists, agronomists, geologists, economists, soil scientists, hydrologists, engineers, soil conservationists, plant materials specialists, and other resource conservationists.

Established by Public Law 46 in 1935 during a national crisis brought on by drought and economic depression, SCS's immediate task was twofold: (a) to help restore private and public lands damaged by wind and water erosion to productivity, and (b) in cooperation with universities, farmers, and ranchers to develop methods and apply measures to protect and maintain lands used for food and fiber production.

Regional planners, local government agencies, land developers and others soon learned that many conservation practices used on rural lands were equally effective in protecting soil laid bare to wind and water erosion during construction of housing developments, highways, shopping centers, airports and other facilities. Working through conservation districts, SCS professionals extended their assistance to help solve those and other environmental problems in suburbs and cities.

Later, other responsibilities were added by law to the national soil and water conservation program. Included were authorities for providing technical and financial help for watershed protection and flood prevention, resource conservation and development on a multicounty basis, and an accelerated survey of soils to determine their basic characteristics and provide information on their suitability and limitations for different uses.

SCS recognized early that attainment and maintenance of an acceptable level of environmental quality essential to the physical, social, and economic well-being of the nation and individuals are rooted in effective environmental education for all citizens. In order to make responsible decisions concerning environmental matters, every citizen needs to have the appropriate decision-making skills and reliable

information about the entire range of available alternatives and the likely consequences of choosing any one. The scope of the national soil and water conservation program means that SCS works with people of all ages and economic levels, and widespread availability of technical help and natural resource information from SCS local offices has stimulated school administrators and teachers to use SCS professionals in incorporating environmental studies in curricula at all grade levels.

Assistance to schools has had a high priority among SCS conservation responsibilities. In 1938, a study unit on soil at junior and high school levels prepared with the help of SCS was published in the Journal of Geography. The study emphasized the economic importance of soil and the interdependence among natural resources.

The October 1940 issue of Soil Conservation magazine was devoted entirely to conservation education, describing model studies developed by teachers and students in different parts of the country. Earlier that year, an SCS specialist as consultant to a joint meeting of national education organizations helped organize a "Commission on Education and Resources." Emphasis was on the integration of conservation education into the total curricula at all grade levels, based on the premise "that sound use of natural and human resources essential to the future well being of America must come through education."

In August 1945, SCS sponsored a series of regional conferences for leaders in education to find more effective ways of encouraging conservation education in classroom studies and outdoor activities. Also in 1945, the Izaak Walton League of America established a National Committee on Policies in Conservation Education that eight years later became the Conservation Education Association. SCS specialists served on the original committee and have continued a close working relationship with CEA.

In initiating, supporting, and directly assisting environmental education as a function of general education, SCS continues to align its efforts with local education agencies, state departments of education, colleges and universities, and major youth-serving organizations.

A series of four technical seminars was held in 1973, which brought together educators and SCS people at the state level, to identify environmental education needs and improve SCS technical and information assistance to schools. Subsequently, similar workshops were held at multicounty levels in most states to focus directly on local opportunities for environmental studies and to identify opportunities for effective SCS assistance to schools.

In 1975, SCS initiated a series of regional workshops on working with teacher education institutions to encourage improved teacher preparation for environmental education. Held in cooperation with colleges and universities, these workshops generated similar workshops on an area basis in several states.

Seven regional environmental education workshops covering the United States were conducted in 1977 by the National Association of Conservation Districts with assistance from SCS. Participants included environmental education coordinators from state departments of education, resource and education specialists from state and federal agencies, and members of education committees of state associations of conservation districts. The purpose of these meetings was to enlist the support of state departments of education, organizations, and agencies in specific environmental education endeavors.

SCS has consistently resisted the temptation to produce dogmatic packaged programs. Instead, its efforts are directed at helping schools, youth groups, and citizen organizations meet state and community defined environmental education needs and objectives within the physical, economic, and cultural resources available.

Support for environmental education as an integral part of school curricula is defined in written SCS policy. Professional staff members are directed to provide requested assistance at all levels of education. SCS activities to initiate and assist formal and nonformal environmental education activities include:

1. On-site help to schools and teachers in planning and developing outdoor classrooms as laboratories for hands-on learning experiences in using and managing natural resources to develop knowledge, skills, and attitudes for preventing and solving environmental problems. Working with real environmental problems enables students to understand how their decisions and behavior affect other living things and helps them to define their personal role in relation to their environment.
2. Consultive and technical services to help teachers and students with the design of studies, gathering and analysis of data, and the interpretation of information for specific environmental studies. Such studies are usually ongoing projects in community environmental improvement or they may be resource management oriented problem-solving activities that require decisions by students based on their understanding of ecosystem processes.
3. Cooperation with educational institutions, organizations and other agencies in conducting environmental education workshops and seminars to help teachers design and implement environmental education programs and to effectively use outdoor learning/teaching opportunities. Training sessions may be part of formal courses or may be workshops on environmental studies.
4. Publications specifically designed for teacher or group leader use in planning and carrying out environmental learning experiences for students. Such materials suggest techniques for environmental studies and present ideas that teachers can adapt to classroom or outdoor learning projects in different locales at different grade levels. More than a million copies of at least two such publications have been distributed to teachers and schools. Widespread dissemination is given information about

successful environmental education programs, projects, and activities through the monthly SCS magazine. Each issue carries at least one article dealing directly with some aspect of environmental education. SCS is happy to provide teachers and leaders with general and technical publications and other materials as background or base data for designing instructional units in environmental education. SCS also works directly with commercial and other textbook writers as well as producers of audio visual materials to help incorporate fundamental environmental concepts in such works.

5. Assistance to the major youth-serving organizations (Boy Scouts, Girl Scouts, 4-H, FFA, and others) by providing environmental learning materials; direct help with design and preparation of environmental education publications, visual aids, and programs; on-site conservation technical help for specific resource management projects and conservation of camp properties.
6. Public participation in helping solve environmental problems through local organizations and units of government serving as sponsors of federally funded resource conservation and development programs and watershed protection and flood prevention projects. Involvement of the public in natural resource use decisions is carried out largely at the local level through nonformal education.

Environmental education is part of the job of each SCS employee and is included in the annual plan of work in state and local offices as well as in the Washington office, where two professionals in the Education and Publications Branch have full-time responsibilities for work in environmental education.

Because assistance for environmental education is considered an integral part of the basic SCS mission, no separate budget is established for environmental education. SCS does not make direct grants to formal and nonformal environmental education programs. But through cooperative programs and technical assistance to conservation districts, other agencies, and conservation organizations, potential sources of funds or materials oftentimes can be identified. Some conservation districts offer mini-grants within states for initiating and supporting environmental education programs. Many conservation districts provide scholarships for teachers to participate in workshops or seminars. Some conservation districts also arrange for the use of heavy machinery in establishing conservation practices on school sites. Sources of plant materials for outdoor classroom studies and for improving wildlife habitat on school sites are often available through conservation districts.

In the national office, SCS services about 4,000 requests a month from schools and teachers. State and local offices respond to many times that number. In 1976, SCS employees assisted in conducting some 400 formal environmental education courses or workshops for teachers.

During the last decade, SCS has been instrumental in helping establish working outdoor classrooms on approximately 6000 school sites.

SCS prepared the national Boy Scout soil and water conservation merit badge manual, which remains most popular of the merit badges dealing with natural resources. In 1976, 17,481 Scouts earned that merit badge. In cooperation with the Forest Service, SCS sponsors the annual USDA Council Conservation Awards Program for the Boy Scouts of America.

SCS makes concerted efforts to provide environmental training for its own employees. The agency maintains four employee development centers that give continuous training in the areas of ecology, sociology, economics, and appropriate technical fields for its many different specialists. Six years ago, SCS prepared a rigorous 16-month home study course on "The American Environment" to help professional employees improve their understanding of the environment. For the past four years, SCS has contracted with three leading universities to provide intensive ecologically oriented training for several hundred key program leaders, beginning with the agency head and his top staff.

Among SCS publications that provide information, program ideas, project suggestions, and examples of environmental studies are:

- "Outdoor Classrooms on School Sites" PA-975
- "An Outline for Teaching Conservation in Elementary Schools" PA-268
- "Teaching Soil and Water Conservation: A Classroom and Field Guide" PA-341
- "Conservation and the Water Cycle" AIB-326
- "What Is A Watershed?" PA-420
- "Environmental Education In Action"
- "Environmental Education in Action II"
- "Conquest of the Land Through 7,000 Years" AIB-99
- "Early American Soil Conservationists" MP-449
- "How A Tree Grows" FS-32

Examples of audio cassette color slide sets produced by SCS and available for the prices indicated from Photography Division, Office of Governmental and Public Affairs, USDA, Washington, D.C. 20250 include:

- "Consider The Soil First" C-183 - \$18.50
- "Know Your Land" C-8 - \$16.00
- "Limits" C-204 - \$20.50
- "Sharing Our Land With Wildlife" C-177 - \$17.00
- "Washout" C-160 - \$16.00

To obtain SCS publications and other help for environmental education, individuals and groups should contact the nearest SCS office, usually located in the county seat and listed in the telephone directory under U.S. Government, Department of Agriculture.

Continually expanding demand for land and water, changing attitudes and desires of citizens concerning economic, social, and political aspects of resource management, new technologies, increasing concern about energy, and other factors all signal that federal agencies must get on with the important task of helping people acquire the knowledge and skills needed to choose intelligently among alternative courses of action for harmonizing human activities with ecosystem processes. Building on its experience and current programs, SCS fully intends to continue its environmental education activities and take new initiatives to meet public demand.

---Submitted by:

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November 30, 1977

NATIONAL SEA GRANT PROGRAM

*National Oceanic and Atmospheric Administration
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The National Sea Grant Program is concerned with the development and wise use of the ocean's resources. It was established in 1966 to accelerate research, education, and advisory services in marine resources, including their conservation, proper management, and social and economic utilization. The term "Sea Grant" was chosen to emphasize its parallel with the century-old "Land Grant" program--to point out how the present needs of the nation in the marine environment compare to the need for developing the nation's agricultural lands in the 1860's. The Sea Grant Program follows the pattern of Land Grant by providing the means through which scholars, institutions of higher learning, and others can apply their knowledge and talents to the practical needs of the nation. It includes the Land Grant concept of advisory, or extension, services through which marine advisory agents are located in the coastal and Grant Lakes regions to assist commercial and recreational fishermen, seafood processors, and others with their marine problems and to speed up the introduction of the latest results of scientific research within the marine educational, scientific, commercial, and recreational communities.

The Office of Sea Grant, National Oceanic and Atmospheric Administration (NOAA), administers the National Sea Grant Program. Through a matching fund program, the office provides grants to colleges and universities and to other groups and individuals to carry out marine research, education, training, and advisory service projects.

Under the program, the Office of Sea Grant receives proposals from eligible institutions. Following a thorough review, often including a site visit by a team of experts, a grant or contract may be approved. In general, two-thirds of any grant comes from federal appropriations. The remaining one-third must come from non-federal sources. Because most projects concentrate on local and regional research, Sea Grant has attracted support of private industry, state agencies and legislatures, consumer groups, private foundations and individuals, as well as colleges and universities. Approximately 60 percent of Sea Grant funds are normally allocated to research projects. The remaining 40 percent usually go to education, training, and advisory service programs.

Sea Grant involvement in education and training is authorized in P. L. 94-461, passed October 8, 1976, extending and strengthening the National Sea Grant Program which was established in 1966. The act which originally established the program stated that its authority should be exercised by "(1) initiating and supporting programs at sea grant colleges and other suitable institutes, laboratories, and public or private agencies for the education of participants in the various fields relating to the development of marine resources," and "(3) encouraging and developing programs consisting of instruction, practical demonstrations, publications, and otherwise, by sea grant colleges and other suitable institutes, laboratories, and public or private agencies through marine advisory programs with the object of imparting useful information to persons currently employed or interested in the various fields related to the development of marine resources, the scientific community, and the general public." (Emphasis added.)

Throughout its 11 years of existence, Sea Grant has supported new activities in marine education and helped to improve established ones. The emphasis, in accordance with its legislative mandate, has been on production of skilled personnel who can assist in the development of several kinds of marine technicians. As an important element of Sea Grant research, graduate students are supported in a wide variety of marine-oriented disciplines and specialties. Over the years Sea Grant has also supported a few curriculum and materials development projects and added a small number of education specialists to the Marine Advisory Service.

During the past couple of years, Sea Grant has somewhat changed the emphasis of its education grants. Sea Grant institutions have been submitting an increasing number of proposals for activities aimed at education of minority and inner-city youth. During Fiscal Year 1977, Sea Grant awarded funds for three projects to increase public awareness of the oceans and the coastal zone, a dozen projects to develop marine curricula attuned to the needs and geography of particular areas, and one project to develop a national policy on marine education in the U. S. This last item, administered through the University of Delaware Sea Grant College Program, involved a series of workshops for teachers and school administrators, primarily in the public schools. Workshops were conducted throughout the nation, some of them in non-coastal areas.

Another step was achieved during the past year when Sea Grant was instrumental in bringing about an agreement between the National Oceanic and Atmospheric Administration (NOAA) and the U. S. Office of Education. The interagency agreement, signed August 25, 1977,

is expected to promote coordination between the educational activities of these two federal agencies.

--- Submitted by:

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December 7, 1977

OFFICE OF COASTAL ZONE MANAGEMENT

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The General Mission

The Coastal Zone Management Act of 1972 authorized grants to be given to state governments to develop and implement coastal management programs. The Office of Coastal Zone Management (OCZM) in the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce administers this program for the 30 states and three territories participating. The goal of the program is the effective management, beneficial use, protection and development of the coastal zone. This is to be achieved by state governments in cooperation with Federal Agencies and with the participation of the public. Most states are now in their second or third year of coastal management program development. Washington, Oregon and California are the first states to have their programs approved and are now implementing them. In addition, the Office of Coastal Zone Management is responsible for implementing the Coastal Energy Impact Program which provides funds to alleviate the impact of services and facilities required of local governments as a result of increased energy development in the coastal areas.

In an effort to fulfill the legal requirement for the participation of the public in the development of coastal programs, the Office of Coastal Zone Management (OCZM) is sponsoring a small number of educational activities to teach students the value of the coast, the increasing pressure on it and the need for coastal management.

Involvement in Environmental Education

On a state level some state Coastal Management programs are funding small coastal education projects. An example is an eight-week elementary and secondary teacher training course in Virginia.

On a Federal level the Office of Coastal Zone Management has funded a few environmental education projects which will be useful on a national basis. One project, partially funded by OCZM, was to develop coastal curriculum units for grades K to 12, bibliographies of materials available, and to institutionalize the use of the materials in schools in four states. The curriculum units are available through the University of Delaware (see Products Available, pp. 33-34).

Another project partially funded by the Office of Coastal Zone Management was the development of a one-term Coastal Studies curriculum which combines government, ecology and economics for juniors and seniors in high school. The materials developed for this elective course have been tested in Hawaii schools. Through funding from several organizations, anticipated teacher training for the course is to be offered in three or four states in November or December of 1978. The first teacher training will be offered to teachers whose schools will offer the course in January of 1979.

The office has developed three Coastal Awareness Resource Guides which contain materials for one week of instruction for science teachers. They are available at the elementary, junior high and high school levels.

Target Audiences

The materials which have been and are being produced are for use by teachers.

Enabling Legislation

The requirement for public participation in the Coastal Zone Management program provides the basis for educational activities in the Coastal Zone Management program.

Funding

Funding levels for education have varied in the short life of the Coastal Zone Management program and are uncertain. The highest amount in a given year was approximately \$120,000. There is a possibility that \$50,000 will be spent in the coming year.

Grants Available

The prospects for grant money are poor. Unsolicited proposals for small projects that are national in scope and provide for immediate implementation will be considered. A small contract for a Resource Guide in coastal art, literature and history may be awarded.

Products Available

From Project COAST, Willard Hall, University of Delaware, Newark, Delaware 19711:

- Description and prices of Coastal/Oceanic Awareness Studies Curriculum Units, 25¢

- "Audio Visual Aids, Games and Art for Marine Environmental Studies," \$2.00
- "Catalog of Curriculum Materials for Marine Environmental Studies," \$1.00
- "A List of Books on the Marine Environment." \$2.00
- "An Annotated Bibliography of Periodical Sources for Marine Environment Studies," \$1.00

Efforts are underway to familiarize coastal state departments of education and local schools with the availability of coastal education materials.

From the Office of Coastal Zone Management:

- Coastal Awareness Resource Guides for Teachers in Elementary Science
- Coastal Awareness Resource Guides for Teachers in Junior High Science
- Coastal Awareness Resource Guides for Teachers in Senior High Science
- Sample kit describing the Coastal Studies one-term elective course in ecology, economics and government for juniors and seniors in high school.
- Description of Coast Teacher Training - a general introduction for teachers at all levels to Coastal Awareness.

--Submitted by:

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February 15, 1978

U.S. ARMY CORPS OF ENGINEERS

*Department of the Army
Office of the Chief of Engineers
Washington, DC 20314*

Objectives

The U.S. Army Corps of Engineers is basically in charge of water resource development in the nation. In executing its missions, it must evaluate their impact on the environment. To achieve this environmental objective, the Corps advises the public of the potential environmental impact of proposed Corps activities and the measures the Corps is taking to prevent or minimize any adverse impacts.

The environmentally oriented activities at completed Corps projects provide many opportunities to make the visiting public aware and sensitive to environmental values.

Levels of Involvement in Environmental Education

The environmental education activities of the Corps are chiefly decentralized, as are other Corps activities, to allow the Districts, which are the field operating agencies, freedom to fully represent and act for the Corps at the local level.

History of Involvement in Environmental Education

The awakening of interest in the environment in recent years has impacted on the Corps' intensified efforts to acquaint the public with the environmental issues associated with Corps missions and activities.

The most recent expansion of the Corps' environmental responsibility is the so-called "Section 404 Permit Program" which is designed to protect the water quality of our rivers, streams, lakes and wetlands. Congress has given the Corps regulatory responsibility to protect our navigation channels and harbors against encroachments and to restore and maintain water quality by regulating the discharge of dredged or fill material in coastal and inland waters and wetlands.

The purpose of the program is to ensure that the chemical-biological integrity of waters of the United States is protected from the irresponsible and unregulated discharge of dredged or fill material that could permanently destroy or alter the character of these valuable

resources. The program provides for the consideration of all concerns of the public—environmental, social, and economic—in the Corps' decision-making process either to issue or deny permits. The public is therefore urged to understand and support this program. The understanding and support of the American people is vital to the success of this program. To protect the quality of the nation's water resources, including wetlands, all must join in this vital effort. Thus, the Corps encourages the "passing the word" to others concerning the permit requirements, and solicits views and comments on better ways to attain the program goals.

Target Audiences of Environmental Education Efforts

The primary, but not exclusive, Corps target is organized groups. Efforts are being made at district level to provide local school systems with environmental education material and general information about the Corps' responsibilities in the care of the environment.

Methods/Techniques/Procedures Used in Environmental Education

The Army Corps of Engineers has no environmental education program as such. As part of its activities to keep the public aware of Corps actions and to encourage public participation in planning and general conduct of water resources management, the Corps performs some environmental education activities. The Corps performs its missions in a decentralized mode, with each district responsible for the tactical activities within its sphere.

Attempts have been made by districts to lay a broad foundation of public understanding and support for Corps programs through such activities as encouraging the formation of citizen advisory groups, and then having them act as surrogates in Corps programs by taking such actions as requesting local boards of education to include environmental education and general Corps information in the curriculum. Also, traveling displays have been used during such Corps-sponsored events as Water Week, consisting of slide presentations and brochure distribution, at shopping centers, and schools, museums, and libraries. Newsletters on water resource matters are mailed regularly to individuals, organizations, schools and other interested groups by many districts. The Pittsburgh District recently started an environmental competitive event (Eco-Meet) program, which is a one-day series of competitions in wildlife and plant identification, interpretation, and orienteering for students in grades 1 through 12 throughout the district. This is a fast-growing program, which reaches increasing numbers of students during each competitive meet.

Products/Publications Related
to Environmental Education

All-purpose Corps informational materials are also used for environmental education activities. There are a few publications specifically designed for environmental education use, such as "Teachers Guide to Corps of Engineers Lakes" by the Pittsburgh District, and "The U.S. Army Corps of Engineers Salutes the Boy Scouts of America," also published by the Pittsburgh District.

Enabling Legislation Citation

Public Law 85-480, July 2, 1958: "An Act to authorize the Chief of Engineers to publish information pamphlets, maps, brochures, and other material. Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the Chief of Engineers is hereby authorized to publish information pamphlets, maps, brochures, and other material on river and harbor, flood control, and other civil works activities, including related public park and recreation facilities, under his jurisdiction, as he may deem to be of value to the general public."

---Submitted by:

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December 30, 1977

DEPARTMENT OF ENERGY

Washington, DC 20545

Overview of General Mission

The Department of Energy (DOE) began operation on October 1, 1977, having been established by Congress through P.L. 95-91. It brings together the many energy programs and offices existing in various departments and agencies of the Federal Government.

The DOE is charged with carrying out, in a coherent and effective manner, all the elements of the Nation's energy policy and providing a unified leadership. One of the missions of the Department is "to assure incorporation of national environmental protection goals in the formulation and implementation of energy programs, and to advance the goals of restoring, protecting, and enhancing environmental quality, and assuring public health and safety." (P.L. 95-91; Sec. 102 (13).)

The Assistant Secretary for Environment is charged with environmental responsibilities and functions, including advising the Secretary with respect to the conformance of the Department's activities to environmental protection laws and principles, and conducting a comprehensive program of research and development on the environmental aspects of energy technology.

The Assistant Secretary for Intergovernmental and Institutional Relations is charged with the responsibility for working with colleges, universities, and public schools in the area of energy education. Through the Education Programs Division/DOE, a variety of educational programs will be conducted involving environmental, social, and economic aspects of energy education.

Levels of Involvement in Environmental Education

At the national level, teaching materials and general informational materials for teachers and students are developed and distributed. National conferences on energy education are sponsored from time to time. At the regional level, various conferences and faculty workshops are conducted on a regular basis. At the state level, selected college and university faculty make energy and environment workshop presentations using a unique computer-simulator to students in public schools and colleges as well as to organized citizens groups. All DOE field offices and laboratories provide educational programs at the state and regional level.

History of Involvement

Although the Department was established in 1977, it is continuing the programs and activities started in other departments and agencies as far back as the 1940's. The environmental concerns of the Atomic Energy Commission (AEC) were absorbed by the Energy Research and Development Administration (ERDA) in 1975. The Federal Energy Administration (FEA) carried over some of the activities from the Department of the Interior when it was established in 1975.

Target Audiences

These audiences include the elementary and secondary school teachers and students. They also include the general public with emphasis on organized citizens groups. The faculty and students of colleges and universities have always been a major audience for these activities.

Methods, Techniques and Procedures

A wide variety of teaching materials are developed and distributed. These include manuals, sourcebooks, lesson plans and reference materials. In addition, informational booklets, pamphlets and charts are provided. In the audiovisual area, films and exhibits are developed and distributed.

Among the techniques used are faculty institutes, faculty workshops, faculty and student experiments, conferences, visiting lecturers and faculty research visits. More formalized activities include sponsored research in science and engineering, university laboratory/university-research center cooperative research and training activities, one-year faculty research participation and summer student research participation.

Awards are made to students at the International Science and Engineering Fair each year for outstanding exhibits on energy and environment. The Department operates the American Museum of Atomic Energy in Oak Ridge, Tennessee, as well as the National Atomic Museum in Albuquerque, New Mexico. Exhibits are provided to various science museums across the country.

Citation of Enabling Legislation

The primary enabling legislation at present is Public Law 95-91.

Funding

These programs are funded through specific funds appropriated for the Office of Public Affairs and the Education Programs Division as well as for the Office of Technical Information. Additional funds are provided from funds appropriated for other program offices for specific activities related to their programs.

Grants Available

Funds are given to colleges and universities for conducting traineeships, conferences, workshops, studies, and training activities. Other funds are available from laboratories and research centers for activities under their control.

Products and Publications

A large number of energy and environment exhibits and demonstrations are shown in various science museums, local fairs, shopping centers and other public gathering places. Citizens' Workshops on Energy and Environment are provided in every state. Booklets, pamphlets and brochures are prepared and are available upon request. Films on a variety of topics in energy and environment are available upon request. Special curriculum materials for use in both elementary and secondary schools are available.

Measures of Success

During FY 1977, the Citizens' Workshop Program conducted approximately 10,000 one-to-three hour workshops to organized citizens groups involving almost 300,000 citizens in active discussions and computer simulations. In addition, there were 74 traineeships awarded to students at 31 colleges and universities to support study toward advanced degrees in various energy and environment fields. During the same period, there were 31 institutes, short courses and workshops conducted at selected colleges and universities and DOE laboratories on energy and environment for 900 high school and community college faculty members. Also, there were 83 exhibit and demonstration units which gave 316 showings to approximately 10 million people. There were 82 different titles of booklets, pamphlets and brochures of which approximately 10 million copies were distributed. There were 190 different titles of films for which approximately 175,000 showings were made to an audience of approximately 6,500,000 people. There were 31 titles of curriculum materials of which 600,000 copies were distributed.

Future Plans

All of these programs will be continued at the same or higher levels. In addition, new programs and materials are planned. The most ambitious of these is the Energy Extension Service which is operating in ten states on a pilot basis in FY 1978.

---Submitted by:

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December 2, 1977

NATIONAL INSTITUTE OF EDUCATION

*Office of Dissemination and Resources
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The nation invests nearly \$120 billion per year in education, yet less than 1 percent of that total is spent in research and development (R&D) to improve education. By comparison, agriculture spends 3 percent on R&D, and on health about 4 percent.

Congress, therefore, declared in the 1972 enabling legislation for the National Institute of Education (NIE) that "while the direction of the education system remains primarily the responsibility of state and local governments, the Federal government has a clear responsibility to provide leadership in the conduct and support of scientific inquiry into the educational process." (Public Law 92-318.) Thus, NIE was charged with the responsibility of 1) collecting and disseminating the findings of education R&D, and 2) advancing the practice of education as an art, science, and profession through the application of education R&D.

NIE's 1976 reauthorizing legislation was even more emphatic in requiring the Institute to carry out dissemination programs that would help teachers, administrators, and decision makers improve the practice of education in schools across the country. Under this legislation, NIE is responsible for improving dissemination of the results of knowledge gained from education R&D and providing assistance to education agencies in applying those results. Thus, NIE has a broad charge to speed R&D into practice—not only the outcome of NIE-supported work, but all knowledge and innovation potentially useful to solving or ameliorating educational problems.

In meeting this charge, NIE employs four basic dissemination strategies:

1. Strengthening existing system elements by building improved dissemination capacity within the educational system, primarily in a cooperative mode with State Education Agencies;
2. Adding critical elements in terms of knowledge resources, using the Educational Resources Information Center (ERIC) as a key;
3. Connecting, coordinating, and reconfiguring the system, working with the Council of Chief State School Officers, State Education Agencies, local education agencies, regional laboratories and centers, and institutions of higher education; and

4. Understanding processes and systems for using and producing knowledge, by evaluating and improving the three strategies above.

NIE's interface with environmental education permeates these four strategies; it is most readily exemplified in terms of the second one, and primarily through the ERIC system.

ERIC was established as a national information system, originally (1966) designed and supported by the U.S. Office of Education and now located within the National Institute of Education.

Through a network of specialized centers or "clearinghouses," each of which is responsible for a particular educational area, current information relevant to education is monitored, acquired, evaluated, abstracted, indexed, and listed in ERIC reference products. Through these reference publications any person has access to reports of innovative programs, curriculum materials, conference proceedings, bibliographies, outstanding professional papers, and reports of significant efforts in educational research and development.

In addition, each clearinghouse produces bulletins, interpretive summaries, research reviews, and bibliographies. These products are made available through the ERIC system and are announced in the bulletins.

The ERIC Clearinghouse for Science, Mathematics, and Environmental Education (ERIC/SMEAC), located at The Ohio State University, is designated as the "official" environmental education clearinghouse, but the interdisciplinary nature of environmental education effectively creates a need for environmental education-related activities to be conducted in many clearinghouses. For examples, many documents concerned with environmental education from a "social science" perspective are processed through the Social Studies/Social Science Education Clearinghouse (ERIC/ChESS) at Boulder, Colorado, while many concerned with outdoor education go through the Rural Education and Small Schools Clearinghouse (ERIC/CRESS) at New Mexico State University, Las Cruces. Other clearinghouses also process environmental education materials as they relate to the specializations of those clearinghouses.

Two monthly guides to the document-processing activities of the ERIC system are published:

RESOURCES IN EDUCATION (RIE). A monthly abstract journal of recently completed educational research reports, descriptions of outstanding programs, and other documents of educational significance. It is indexed by subject, author or investigator, institution, and accession number. Semiannual cumulative indexes are also available.

CURRENT INDEX TO JOURNALS IN EDUCATION (CIJE). A monthly guide to the periodical literature, with coverage of more than 700 major educational and education-related journals. It includes a main entry section with annotations and is indexed by subject and author. Semiannual cumulative indexes are also available.

ERIC publications are designed so that once familiar with the format of one, all others are readily used. To offer a variety of approaches, they are indexed by:

Subject—to find documents and projects on a specific topic through the use of descriptors.

Author or Investigator—to find out what an author has written or to learn what an investigator is doing.

Institution—to find out what an institution has published or what research projects are now being conducted at the institution.

Accession Number— to identify a document when only the clearinghouse number or ERIC number is available.

ERIC materials are subject indexed according to a standard set of "descriptors," forming a structured vocabulary of educational terms. A complete listing of descriptors is published in the Thesaurus of ERIC Descriptors. Each processed document lists five to ten descriptors useful in locating it.

Once a document has been found, reference is made from one of the four indexes (subject, author, institution, or number), to the "resume" section of the monthly guide for the abstract or annotation of the document or periodical article identified. From this the user can determine whether or not he wants the full text.

One of the strengths of the system is that the monthly guides (RIE and CIJE) are system-wide, reporting all the documents processed by all the clearinghouses.

The environmental educator using the system will find a wide variety of descriptors which will be of value in locating documents of interest. They include, but are in no way limited to: Air Pollution, Conservation (Environment), Conservation Education, Energy, Environment, Environmental Education, Environmental Influences, Environmental Research, Land Use, Natural Resources, Outdoor Education, Population Education, Waste Disposal, Water Pollution, and Water Resources. Through December 1976 the descriptor "environmental education" had been used, system-wide, 1868 times in reference to documents reported in RIE, and 1675 times for articles and papers announced through CIJE.

A key to the ERIC system is availability—all documents announced through ERIC must be available in some fashion to the potential user. In most cases for RIE documents, both microfiche and hard (paper) copy may be secured at low cost from Educational Document Reproduction Service (EDRS); exceptions may be made for copyrighted materials which are obtainable from original sources or, in some cases, commercial publishers. For CIJE documents, availability is generally through reference to the journals in which they were published.

More than 600 "standing order customers," in the U.S. and 60 foreign countries, mostly libraries in institutions of higher education but also including federal agencies, state education agencies, and others, maintain standing collections of ERIC microfiche; essentially, the complete ERIC collection is available in each of those locations. In addition, the ERIC system is computer-searchable through magnetic tapes available at a number of locations, plus through interactive systems such as Lockheed's "Dialog."

Maintaining document flow is the primary task of each ERIC clearinghouse; there is apparently no way to locate, secure, process, announce and make available all pertinent materials, but each clearinghouse continues in its efforts to secure complete coverage of its field of specialization. ERIC/SMEAC, for instance, reviews 17 journals specifically for environmental education-related materials, plus many more science education journals. Other clearinghouses maintain similar efforts, frequently processing materials within the purview of environmental education.

Each clearinghouse also develops and maintains working relationships with key professionals in its field of specialization. This typically includes recognized leaders in institutions of higher education, state education agencies, federal agencies, and the like. In environmental education, ERIC/SMEAC has developed cooperative efforts with the Alliance for Environmental Education (AEE), the National Association for Environmental Education (NAEE), Western Regional Environmental Education Council (WREEC), the newly-formed State Environmental Education Coordinators Association (SEECA), and the Subcommittee on Environmental Education of the Federal Interagency Committee on Education (FICE/SEE). Such cooperative efforts include the facilitation of document flow and the development of environmental education products of use and interest in the environmental education community. For examples, ERIC/SMEAC has published the following:

Current Issues in Environmental Education, the selected papers of the NAEE's annual conference, three times;

Environmental Education Perspectives and Prospectives, the two-volume report of the Snowmass Conference on Environmental Education, with AEE and WREEC;

A Report of the North American Regional Seminar on Environmental Education, with AEE;

Environmental Education 1975: A State-by-State Report, with the incipient SEECA group; and

this volume on the environmental education activities of federal agencies, with FICE/SEE.

In addition, ERIC/SMEAC has produced the following information products directed specifically to environmental education:

Eight sets of teaching activities in environmental education, directed toward classroom teachers;

Two compilations of ERIC abstracts in environmental education from RIE;

Four editions of a project/program directory in environmental education;

Two reviews of research in environmental education;

Two sets of case studies in environmental education.

Address for the ERIC Clearinghouse for Science, Mathematics, and Environmental Education is: The Ohio State University, 1200 Chambers Road, Columbus, Ohio 43212; (614) 422-6717.

---Submitted by:

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December 2, 1977

CENTER FOR POPULATION RESEARCH

*National Institute of Child Health and Human Development
National Institutes of Health
Public Health Service
Department of Health, Education and Welfare
Bethesda, MD 20014*

Overview of the general mission of the agency, indicating the objectives of its involvement in environmental education as related to its general mission.

Within the National Institutes of Health, the National Institute of Environmental Health Sciences, as reported elsewhere in this document, has the main responsibility for health-related programs and policies in the environmental area. The Center for Population Research, established in 1968 in the National Institute of Child Health and Human Development, has a related research role in its concern for the consequences of population growth and change. Continued population growth and redistribution, and the more distant possibility of population stability, have a variety of implications for our environment. The effects of such population change are, of course, mediated by many other variables: the technology employed, patterns of land use, pricing systems, economic and governmental policies, and aspirations of the public for particular kinds of housing, rural or urban environments, etc.

The present population of the United States is about 217 million. If most women carry out their current fertility intentions and have two children, the population would be 258 million at the turn of the century and 288 million (or nearly one-third more than now) in the year 2025. But if women should have an average of three children, the population would be well over 300 million by the end of the century. In any event, given the age-sex structure of the population and replacement fertility, the addition of 70 million to the U.S. population in the next five decades will have an impact on the environment.

Population acts essentially as a multiplier of environmental effects in the sense that more people require more land to be developed for residential use, more water for home, industrial and agricultural purposes, more minerals for industrial production, and more provisions for the safe disposal of waste materials. When per capita income and consumption are increasing at the same time that population is rising, the population multiplier intensifies not only levels of resource utilization but also environmental pollution and makes the latter increasingly difficult to deal with successfully.

Moreover, environmental impact is aggravated by the concentration of population—1970 census figures show 31 percent of the population living in central cities. Although people live in the cities and

suburbs where jobs are located, Gallup Polls show a decreasing proportion of people preferring city life. This is a reflection of limited housing, pollution, noise and other environmental problems that are particularly visible in cities.

In its program the Center has therefore encouraged research dealing with how the interactions among population growth, economic activities, resource utilization and environmental factors affect the quality of life of the average citizen.

Levels of involvement in environmental education—national, regional/local, etc.

The limited research which the Center for Population Research has so far supported on the effects of population growth and change on the environment has dealt primarily with impacts at the national level, but has also taken into account regional impacts to some extent.

History of involvement in environmental education

The Center is involved in environmental education through its support for research on the environmental effects of population change. Under a general Request for Proposals (RFP) the Behavioral Sciences Branch contract program in 1971 funded "A Study of Optimum Population Levels" (University of Virginia, Dr. S. Fred Singer, Principal Investigator). Under a specific RFP dealing with "The Economic and Environmental Consequences of Population Change," the Branch in 1973 funded research on this topic by Resources for the Future, Inc. with Dr. Ronald C. Ridker as Principal Investigator.

Both of these studies, while essentially economic in approach, include environmental impacts through assessment of the costs associated with pollution abatement and resource depletion. The University of Virginia study has attempted to modify the Gross National Product (GNP) to take into account those components of the index which represented economic costs associated with population growth in order to construct an index of Quality of Life which can be used to estimate when the economic advantages of population growth diminish. A major accomplishment to date has been the development of a computer simulation model of population, resources and the environment in the U.S., and development of methods to determine pollution and resource depletion costs. The model is capable of generating a corrected per capita GNP, called the "Q-Index" (for Quality of Life), and work is proceeding to identify necessary data for its computation. The RFP study is also analyzing the effects of varying rates of population growth on the economy, the resource base, and the environment, including regional impacts. A model has been developed that is capable of integrating large quantities of data. Findings of both studies to date indicate that projected measures of per capita welfare are higher with slower than with more rapid rates of population growth.

Target audience(s) of environmental education efforts.

The Center's behavioral sciences program has focused on research necessary to create the scientific basis for formulating judicious population policies. The Center disseminates its research findings to policymakers, scholars and the general public in as interesting and informative a manner as possible.

Methods/techniques/procedures utilized in environmental education.

Macro-economic analysis has been the primary tool used in undertaking research on the environment supported by the Center. Working separately and jointly with other public and private agencies, staff members may collaborate with educators to adapt materials to the elementary and secondary levels of the educational system.

Citations of enabling legislation, as appropriate.

The research programs of the U.S. Department of Health, Education and Welfare in the population sciences are directed by the National Institute of Child Health and Human Development in the National Institutes of Health under Section 444 of the Public Health Service Act. In addition, Section 1004 of the Public Law 95-83 authorizes the Secretary of Health, Education and Welfare to make grants and contracts for "research in the biomedical, contraceptive development, behavioral and program implementation fields related to family planning and population." The Center has no authority pertaining specifically to environmental education.

Funding devoted/available to environmental education.

At this time the Center for Population Research has no funds specifically allocated to environmental education. However, funding for the two Center-supported studies that have an environmental component totals \$1,004,000 to date.

Grants available.

The Center's concern for the consequences of population change includes the support of research on the environment through both contract and grant programs. To receive future Requests for Proposals, investigators should write: Dr. Jerry W. Combs, Jr., Chief, Behavioral Sciences Branch, Center for Population Research, NICHD, NIH, Room C-725, Landow Building, 7910 Woodmont Avenue, Bethesda, Maryland 20014 and request a "mailing list" form to complete, indicating areas of interest, and return. For information regarding the grants program, contact: Dr. Sidney Newman, Behavioral Scientist Administrator, Population and Reproduction Grants Branch, Center for Population Research, NICHD, NIH,

Room C-733, Landow Building, 7910 Woodmont Avenue, Bethesda, Maryland 20014. Individual NIH research grant applications may be obtained from university research administration offices or by writing directly to: Mr. Richard W. Turlington, Chief, Inquiries Office, DRG, Room 488, Westwood Building, 5333 Westbard Avenue, Bethesda, Maryland 20016. Deadlines for receipt of grant applications are March 1, July 1, and November 1. Both contract proposals and grant applications are reviewed by peers. In recent years, about one-fifth of the proposals and applications submitted have been approved for scientific merit and funded.

Products/publications related to environmental education.

Only in a very general way do the Center's publications relate to environmental education as such. The September 1976 issue of Population Bulletin written by Dr. Wendy Baldwin of NIH and published by Population Reference Bureau on Adolescent Pregnancy and Childbearing—Growing Concerns for Americans provides a model of what can be accomplished on an important and timely topic for teenagers. Rural-Urban Migration Research in the United States: An Annotated Bibliography and Synthesis by Daniel O. Price and Melanie M. Sikes (U.S. Government Printing Office, 1975) serves as an introduction to the field of migration, which has a bearing on the environment.

In addition to working through private publishers and the Government Printing Office, the Center is placing edited final reports of selected research projects with the National Technical Information Service of the Department of Commerce. The first of these in the behavioral sciences concerns Blacks During the 1960s with Projections for 1980 by Daniel Price—what changes there have been and are anticipated over this period with respect to education, income and occupational structures for nonwhites, and, more specifically, blacks as compared with whites, and for females as compared with males. Data for major regions in which blacks can be identified within the non-white group (South, Northeast and North Central) are considered, as well as the United States as a whole.

Measures of success.

While research supported by the Center has been partially successful, the implication of both studies is that further work will be required. With respect to environmental education, the extent to which the findings will make their way into the public domain and have an impact is still an open question. Thus far Dr. S. Fred Singer's "A Study of Optimum Population Levels—A Progress Report" has been published in the Proceedings of the National Academy of Science, USA, Vol. 69, No. 12, pp. 3839-3848, December 1972, and additional papers from both studies are at various stages of preparation for publication.

Future plans related to environmental education efforts.

Studies will be continued in this area, building on the results of projects already funded, in order to develop as definitive an understanding as possible of the environmental consequences of varying rates of population growth in the United States.

---Submitted by:

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December 1, 1977

NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

*National Institutes of Health
Public Health Service
Department of Health, Education and Welfare
Bethesda, MD 20014*

Introduction

The National Institute of Environmental Health Sciences (NIEHS) serves as a national resource and focal point for the support of environmental health research and research training. In addition to its mission to develop understanding of pathological processes as they relate to the etiology, diagnosis, treatment and prevention of diseases and disorders caused by environmental factors, it also provides support for the training of environmental health scientists in accordance with identified national needs.

Although the National Institute of Environmental Health Sciences is not involved in environmental education under the strictest interpretation of education, it does provide funds for training in environmental research at the predoctoral and postdoctoral levels. The objective of the training program is to prepare individuals for careers in academia, government, and industry. Involvement is at a national level. Grant support is provided to individuals through Individual National Research Service Awards (Fellowships) and to institutions via Institutional National Research Service Awards (training program).

A third program, the Academic Investigator Award-Toxicology, provides salary and ancillary support for more advanced scientists with no training in toxicology so they can concentrate on obtaining research experience in toxicology over a three-year period. This, like the fellowship program, is an individual award and competition for these awards is at the national level.

A more detailed discussion of the three support mechanisms follows:

Training

The National Institute of Environmental Health Sciences' mission focuses on human health. As such, four areas of training are considered to be within its scope and authority.

1. **Environmental Toxicology:** Trainees in this area should receive didactic and research training in pharmacological and toxicological principles which determine the effects of exposure to environmental agents. Pharmacokinetic and pharmacodynamic factors, cellular and molecular mechanisms of action, synergism,

species variability in toxic response, and test development, design and interpretation are all facets of this training area. Graduates should be qualified to pursue careers in experimental and/or predictive toxicology in academia, industry or government.

2. **Environmental Pathology:** Trainees in this area focus their research on factors involved in chemical (as opposed to infectious disease) pathology. Typically, trainees hold professional or academic degrees which qualify them for advanced training in gross- and histopathological research dealing with the structural and functional alterations of tissues exposed to environmental chemicals. Graduates should be qualified to become members of research teams involved in chemical risk evaluation using experimental models. These investigators' primary roles will be to lead in the pathological phases of research and to assist in experimental design and interpretation,
3. **Environmental mutagenesis, teratogenesis and carcinogenesis:** Trainees in these areas are taught to apply the basic principles of genetics, embryology, and biochemistry to applied studies aimed at assessing the potential genetic or reproductive hazards to man of environmental chemicals. Carcinogenesis training similarly should be applied in nature, focusing on the assessment of environmental hazards and specific mechanisms of action rather than on basic studies of carcinogenesis. (This type of research training is sponsored by the National Cancer Institute,) Graduates enter careers in research aimed at understanding hazards and developing predictive tests in these fields,
4. **Environmental Epidemiology and Biostatistics:** Trainees in epidemiology are taught to utilize statistical and mathematical tools to assist in the identification of environmental diseases in human populations. Training stresses non-infectious disease epidemiology with an emphasis on the identification of causes of environmental disease. Biostatistics trainees focus on learning and applying mathematical and statistical tools to assist environmental health scientists in experimental design and interpretation. These programs provide research epidemiologists and statisticians to analyze data from human or animal populations to determine the potential human hazards of exposure to environmental agents.

A. Institutional Support

Domestic nonprofit private or non-Federal public institutions may apply for grants to support training programs in the specified areas of research. Pre- and postdoctoral trainees may be supported if either or both level(s) of training are justified in and approved on the basis of the application. The applicant institution must have, or be able to develop, the staff and facilities required for the proposed programs.

The training program director at the institution will be responsible for the selection and appointment of trainees to receive National Research Service Awards and for the overall direction of the program.

B. Individual Support

Individual Postdoctoral Fellowships are available to recipients of doctoral degrees who are United States citizens or non-citizens who have been admitted for permanent residence. Applicants must be sponsored by an investigator at a domestic or foreign nonprofit private or public institution including the National Institutes of Health (NIH) and the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) that has the staff and facilities to provide the desired training. Applications for training outside the United States require a detailed justification of the need to study abroad based on unique facilities and/or training opportunities.

Academic Investigator Award-Toxicology (AIA-T)

The Academic Investigator Award in Toxicology of the National Environmental Health Sciences Institute is designed to stimulate individuals with research expertise in biomedical sciences toward careers in environmental toxicology. The objective of the program is to provide an opportunity for biomedical scientists (e.g., biochemists, pharmacologists, physiologists, chemists, etc.) to redirect their efforts to this field. Although some past experience in environmental research will not disqualify a candidate, the goal of the program is to provide a mechanism by which toxicology research experience can be gained by scientists not now working in the field to allow them to undertake subsequent research projects which will advance the state of the art of evaluating the human health effects of environmental agents. Therefore, the program is designed to enable the investigator to undertake research on environmental problems under the guidance of a sponsor who is established in the field of environmental toxicology and at an institution where the environment is conducive to rapid orientation of the investigator to the scientific and regulatory facets of human environmental health problems. The award will provide support for up to three years and is not renewable or transferable.

The success of the NIEHS programs can be measured by 1) the publication record of individual fellows and trainees (these articles, published in refereed journals, reflect the research activities of the individual and his/her preceptor during the period of the award); 2) by the success of these fellows/trainees in competing for grant funds from granting agencies; and 3) by placement of these individuals in academia, government or industry in positions closely related to the field in which training was received. The Academic Investigator Award program can best be judged by the number of recipients that actually move into toxicology (research/teaching) from other disciplines after completion of their research experience in toxicology.

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The NIEHS plans to continue and hopefully to increase support of these three programs in environmental health sciences in an effort to provide academia, government and industry with the numbers of qualified investigators/academicians required to carry out the testing, teaching and research mandated by the government (Toxic Substances Control Act), and required by industry (production, testing, research and development of chemicals) and academia (qualified teaching manpower).

---Submitted by:

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November 28, 1977

AGRICULTURE, AGRIBUSINESS, AND NATURAL RESOURCES EDUCATION

*Office of Education
Department of Health, Education and Welfare
Washington, DC 20202*

Leaders in Vocational Education in Agriculture and Agribusiness have included all levels of career education, ranging from the awareness level to the career preparation level, information and training programs pertaining to the environment. Publications financed by the U.S. Office of Education, U.S. Environmental Protection Agency, and U.S. Department of Agriculture have been developed and copies distributed to states. These publications include courses of study, lesson plans, visual aids, and teachers' manuals on subjects ranging from Natural Resources, Environmental Protection, Environmental Horticulture, and a list of employment opportunities in Conservation, Natural Resources, and Environmental Occupations. EPA has made available an illustrated handbook on "Applying Pesticides Correctly."

State Supervisors of Agricultural Education in many states have arranged for inservice training programs on environmental problems. The Future Farmers of America Organization has provided a nationwide program of incentive awards based upon instructional programs in Soil and Water Management, Forestry, Fish and Wildlife Management, Home Improvement, and Building our American Communities (BOAC), all of which stimulate interest and the application of environmental practices. The national Future Farmer magazine has also included articles promoting various aspects of Environmental Education.

The relationships of agriculture and the protection of the environment through natural means, such as application of conservation practices, re-forestation, landscaping, turf management, and community development, are closely integrated. More and more, teachers of Agriculture are becoming aware of their role in the maintenance of a clean and healthy environment and are having a corresponding major influence upon their students and their communities to follow sound environmental practices, just as they have done for years in the promotion of safety.

--- Submitted by:

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October 19, 1977

ENERGY AND EDUCATION ACTION CENTER

*Office of Education
Department of Health, Education, and Welfare
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300 Seventh Street, SE
Washington, DC 20202*

Purpose

The Energy and Education Action Center (EEAC), established by the U.S. Office of Education in collaboration with the Federal Interagency Committee on Education, serves as the point of focus for a Federal Government educational response to the challenges confronting schools and colleges, created by emerging energy realities.

The general mission of the Center is to promote all phases of energy education-related activities on an interagency basis by drawing upon all relevant Federal, State and local resources to assist educational clientele in implementing energy plans.

Objectives

1. To provide technical assistance and information to schools, postsecondary and other educational institutions, in order to encourage and promote energy conservation in educational facilities.
2. To assist and encourage the development or adoption, identification, and dissemination of supplementary curricular materials in order to increase awareness and understanding of the multi-disciplinary nature of energy, environment, and engagement.
3. To encourage and support the in-service training of teachers, administrators, and other members of the education community in areas dealing with energy awareness and understanding, conservation, environment, and engagement.
4. To identify and support programs in career and vocational education which address energy-related employment opportunities.

Activities

To increase coordination of Office of Education energy-focused efforts and to strengthen linkages with other Federal agencies in a manner that effectively serves the education community, the Energy and

Education Action Center is located in the Office of the Executive Deputy Commissioner for Educational Programs.

The major activities of the Center are geared to: (1) assisting current or potential grantees in becoming better informed about sources of federal funds for energy-related activities supportable under existing authorities; (2) increasing clientele awareness of the availability of products resulting from previously funded federal efforts; (3) establishing a reliable data base for conservation-focused facility and curriculum needs; and (4) assisting educators in developing strategies to increase public awareness of the importance and priority of energy and education needs in schools and colleges.

The Center's functional activities include the following:

1. Coordinates Federal agency efforts and activities in the area of energy and education and energy conservation to assist State, local and other educational agencies. Such coordination is facilitated through the Federal Inter-agency Committee on Education (FICE) which includes the U.S. Office of Education, Departments of Energy, Transportation, Housing and Urban Development, and other Federal agencies, as appropriate.
2. Serves as an information center and data distribution network to provide data concerning energy and education materials, conservation measures, and other relevant information.
3. Serves as facilitator of technical assistance by providing:
 - Access to federally-employed specialists in energy fields, who would be available to assist clientele
 - Access to university and professional personnel, employed on a roving "expert" basis for serving as volunteer specialists
 - Access to groups of volunteers assisting agencies in various research and application tasks.
4. Administers a Resource Materials Center to exhibit materials, simulators, games and other educational activities.
5. Conducts training programs involving Federal, state, and local staff, and university and professional personnel. Examples include Federally-sponsored training of local staff; training of Federal staff; training assistance to locals; packaging of training resources; technical assistance; training clearinghouses.
6. Maintains access to a core of personnel designated by or detailed from each participating agency so that the inter-programmatic aspects of the program thrust is appropriately coordinated.

7. Administers a personnel exchange program operating under the presently available authority of the Intergovernmental Personnel Act, in order to increase the availability of Federal staff to clients and of client agency staff to Federal agencies.
8. Supports the development of model pre-service and in-service training programs and projects for new Energy and Environmental professionals, including teachers, and assists in developing educational media programs for general public awareness in energy conservation and in the nature of current and future energy realities.
9. Provides leadership and support in the development of new energy conservation supplemental curriculum materials focusing on the interrelationship of Energy, Environment and Engagement.

Resources and Services

Through the resources provided by the Office of Education and cooperating Federal agencies, the Center serves as a coordinative mechanism to assist education clientele in obtaining technical advice and assistance as well as information concerning energy conservation, supplementary curricula resource materials and a broad array of energy and education-related fields.

The resources and services of the Center are directed to increasing the awareness of education agencies, institutions, associations, and other clientele with respect to the complex nature of energy as it relates to education. The Center's staff assumes a lead role in addressing local, state, regional and national energy problems by initiating and participating in appropriate conferences, workshops and seminars designed to promote needed dialogue between clientele and Federal agency representatives.

--Submitted by:

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February 15, 1978

OFFICE OF ENVIRONMENTAL EDUCATION

*U.S. Office of Education
Department of Health, Education and Welfare
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Background

During the 60's the thrust of public concern and government response to environmental problems was directed primarily to abuses of the physical-biological environment (e.g., air, water, land), with emphasis on preservation or conservation of these resources and on the role of mankind as the destroyer or principal source of destruction of the natural habitat.

Efforts to implement and enforce pollution abatement laws and standards; increases in the number of publicly identified issues/problems; and the broadening of interests reflected in discussions and the confrontational stances assumed in discussions resulted in a growing recognition of the need to address:

1. the interrelationships among environmental problems and the mutual impacts (tradeoffs) inherent in solutions proposed;
2. the social and human aspects of the environmental quality problem (which has yet to be meaningfully addressed);
3. processes for identifying points of consensus and shared values among the various sectors of the population as these relate to quality of life and environmental quality;
4. the need for informed public dialog/participation in decision-making and policy-making relative to environmental quality;
5. problems and issues of quality of life and environmental quality in terms of the future as well as the present;
6. specific environmental quality problems or issues in the context in which they operate.

By the late 60's and throughout the 70's, it was generally recognized that environmental problems might more accurately be characterized as environmental issues; that resolution would be a more appropriate objective than solution since the term "solution" implies a far greater level of consensus and knowledge (scientific and non-scientific) than is the case; that more informed and rational consideration of the relationships between mutual and respective impacts of environmental,

economic, and social concerns is required; and that informed, broader-based public dialog was necessary to elicit the appropriate questions and thus better statements of the problems.

In summary, there has been increasing public recognition of the complexities inherent in as well as the urgency of the problem of environmental quality/quality of life. The citizen response in the 70's has been made in the form of new demands and new laws affecting every major institution of society—governmental, judicial, economic, political, educational. The National Environmental Policy Act (NEPA) provides an excellent example of the depth, scope and complexities—i.e., the characteristics—of the problem of environmental quality. Among other things, it requires the opportunity for citizen participation in public decision-making that incorporate questions of values as well as fact; of human as well as physical environment needs. It "forces" consideration of the interrelationships among human and environmental factors and recognizes the need for consensus-building. Finally, the NEPA is concerned with the means for achieving its goal. In this regard, the Congress invented a democratically acceptable system for pursuit of the goal through successive iterations in the light of individually perceived interests and the larger public interest.

The Technology Assessment Act of 1974 might be viewed as a vehicle for formalizing the evolving process inherent in NEPA. It provides a new emphasis and opportunities for the creation of new methodologies for addressing second and third order consequences (social, human) in "a process of continuous social diagnosis" (United Nations Conference on the Human Environment, 1972). It is directly reflective of the major elements or factors deemed critical in judicial and administrative decisions relating to environmental impact of technology: (1) public disclosure; (2) cost-benefit analysis; (3) alternative actions; (4) social and cultural factors; and (5) technology development forecasts.

These characteristics, requirements, and approaches to environmental quality and the quality of life have also been transmitted to the educational/learning system through both legislation (e.g., P.L. 91-516, as amended by P.L. 93-278) and general public expectation.

The Environmental Education Act of 1970

The Environmental Education Act was viewed and continues to be a critical component of the national effort to address the complex and urgent problems of environmental quality and quality of life. An understanding of the complexities of the economic, social, cultural (i.e., human needs) impacts and considerations inherent in the problems and issues, and thus in their resolution, and the ability to realize informed and broad-based public participation in decisions and policies and support of programs and activities to improve the quality of the environment and life, require the development of educational resources through which all age groups and sectors of the population can be provided appropriate learning opportunities.

The Environmental Education Act provides authority for the development of these resources throughout the educational continuum, for non-formal as well as formal education programs. Environmental education is defined by the Act as "the educational process dealing with man's relationship with his natural and manmade surroundings, and includes the relation of population, pollution, resource allocation and depletion, conservation, transportation, technology, economics, and urban and rural planning to the total human environment." The legislative history of the Act as well as the Act itself stress the interrelationships among environmental concerns and the significance of human factors and needs as they relate to the "total human environment."

Environmental education is an integrated process which deals with man's interrelationship with his natural and man-made surroundings, including the relation of population growth, pollution, resource allocation and depletion, conservation, technology, and urban and rural planning to the total human environment. Environmental education is a study of the factors influencing ecosystems, mental and physical health, living and working conditions, decaying cities, and population pressures. Environmental Education is intended to promote among citizens the awareness and understanding of the environment, our relationship to it, and the concern and responsible action necessary to assure our survival and to improve the quality of life.

Senate Report

...The Committee interprets "multidisciplinary" to mean an educational method which combines approaches and materials from various academic disciplines, including the natural sciences, the social sciences, and the humanities.... Witnesses repeatedly emphasized to the Committee that environmental education is not exclusively scientific; nor is it the province alone of the social sciences or of the humanities. The key to effective environmental education, rather, is in its ability to blend the various disciplines into a total view of man reacting with his natural and manmade environment.

...One task of environmental education should be to put the pieces back together again, to gain a view of the whole, so that relationships among disciplines can be clarified and the consequences of individual acts as they affect the total environment can be recognized....

House Report

Such statements reflect an appreciation of both the hierarchy and the mutual interdependencies between traditional and evolving notions of "quality of life" and "environmental quality." Quality of life concerns are set forth in the Act as well as in general societal

perceptions and values as the context in which to view environmental quality. The Act's definition of environmental education makes explicit the necessity of dealing with "environmental quality" (e.g., the relation of population, pollution, technology, economics, etc.—the interdependencies and mutual impacts of man's activities on the physical environment) in the context of the quality of life (e.g., the relation of population, pollution, etc. to the total human environment—the impacts of environment on man).

The Task of Environmental Education

The purpose of the Environmental Education Act is described as that of encouraging "understanding of policies, and support of activities designed to enhance environmental quality and maintain ecological balance" through the development of "adequate resources for educating and informing citizens on these areas." Environmental Education is thus concerned with both human behavior, those skills and techniques that equip the individual to play an effective role as an intellectually mature participant in problem characterization, policy formulation and implementation, and with human values, those beliefs and needs common to the human experience which guide perceptions of the past and present as well as visions/expectations of the future.

The challenge of Environmental Education from the perspective of educational research and development has not been unlike that of environmental problems for domain-based research. But the challenge to the education system is different in degree and kind since it has the multiple charge of (1) providing continuity with the past, (2) being responsive to needs perceived in the present, and (3) being futures-creative and adaptive. Environmental education is (as stipulated in the Act) an educational process dealing with (and therefore capable of dealing with) the past, present and future evolutions of both the context (quality of life) and the problem (environmental quality) as a synergetic system or whole. This educational process attempts to deal with ill-defined as opposed to structured problems and is dependent upon and should be viewed as an inquiring system. An inquiring system is an "open system," utilizing all known systems of inquiry for the purpose of characterizing and understanding ill-defined problems in a manner that includes the application of the perspectives and ethics of all inquirers. Realization of the goal of environmental education can only be the product of an open process of creative learning derived not only from the goal but also from the shared values and experiences of citizens as common recognition of these evolve as a result of the process itself.

Activities of the Environmental Education Program

The authority of the Environmental Education Act is intentionally flexible in terms of the approaches to be used so as to permit the most effective assistance possible to the broad-based, evolving and uniquely new educational area. The activities of the Environmental Education program have been directed to:

- (1) the identification and exploration of approaches to locally perceived development needs.
- (2) based on information derived from (1) above as well as current research and studies on problems and issues related to environmental quality and quality of life, the identification, exploration, design and/or development of contextual frameworks that can facilitate the articulation and manipulation of the content of environmental quality issues within the context of quality of life (the content of environmental education).
- (3) the exploration, assessment and design of inquiring/creative learning systems through which (a) various constructs and frameworks can continue to be generated, as needed, and can be adapted to the specific learning needs of all sectors of society; (b) citizens can meaningfully and responsibly participate in the evolving characterization and definition of environmental problems as they relate to the quality of life; and (c) inquirers (citizens) can understand and have access to the basic information, tools, and methods available for problem definition, futures-creative problem resolution, and shared learning opportunities inherent in the environmental education process.

One-year competitive general grants and minigrants (\$10,000 or less) are awarded to public and private non-profit agencies, organizations and institutions. The grants focus primarily on meeting the needs described in (1) above. General project grants are awarded in four categories: (1) resource material development, (2) personnel development, (3) elementary and secondary programs, and (4) community education. Over 600 grants for a total of nearly \$15 million have been awarded to date under the Environmental Education Act.

A directory of project abstracts will be available in April. The project abstracts are based on descriptive analysis of grantee and contractor reports and other products. This analysis is being carried out under a contract with the University of Virginia.

In the fall of 1977, a consultation was held with the current grantee population to identify and address specific technical assistance needs and resources. This consultation was the first major event in the implementation of a concerted technical assistance activity by the Office of Environmental Education. The report on the 1977 consultation and plans for the future will also be available in April.

--- Submitted by:

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February 15, 1978

OFFICE OF POPULATION AFFAIRS

*Office of the Assistant Secretary for Health
Department of Health, Education and Welfare
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It should be noted that the population education program of the HEW Office of Population Affairs (OPA) bears a direct and important relationship to environmental education. Student and teacher materials in population education include a significant environmental education component, covering such topics as the relationship between growing and changing populations and the environment, the impact of people on the land they occupy and the resources they use, conserve or abuse, the energy they consume.

Mission of the OPA and Responsibilities of the Population Education Advisor

The Office of Population Affairs (OPA) is the lead office for population education in the Department of Health, Education and Welfare and the focal point for advising the HEW Secretary and the Assistant Secretary for Health on programs of national importance in population dynamics. Through the Population Education Advisor, OPA is responsible for developing, promoting and improving educational policies, objectives and program goals in population education.

The overall objective of the population education effort is to provide opportunities for the school-age population, as well as the general public, to develop greater knowledge and understanding of U.S. and world population trends and developments. To achieve this objective the OPA, through its Population Education Advisor, promotes program support for population education among federal agencies and encourages the establishment of population dynamics activities in the private sector. OPA develops coordinating mechanisms among federal agencies, such as the Interagency Committee on Population Education, which it chairs. The report of this committee, Population Education and the Federal Role, delineates how the needs of population education can best be assisted through programs administered by Federal agencies and the form such support should take. OPA will take the leadership role in following through on the report's recommendations.

While both federal and non-federal officials recognize the relevance of population education, the subject is not accorded priority status and is not supported to any significant extent. Lack of resources and competing priorities for innovative programs are cited as the major barriers to launching a full-fledged effort.

In the federal sphere, the principal objectives of the OPA population education effort are: 1) to help policymakers in federal agencies to see an appropriate role for population education in their work; 2) to assist federal agencies to develop population and environmental components in their relevant educational programs, as well as to coordinate population functions which already exist in federal agencies; 3) to serve as official HEW liaison with federal agencies currently supporting population and environmental education programs or programs with a high potential for future support.

In the non-federal sector, the Population Education Advisor consults regularly with population education associations and with educators and administrative staffs of elementary and secondary schools, colleges and universities, on new approaches to curriculum development, teacher training and research and evaluation techniques.

Enabling Legislation

The population education activity in OPA is derived from Sec. 1005 of the Family Planning Services and Population Research Act of 1970 (P.L. 91-572), which states: "The Secretary is authorized to make grants to public or nonprofit entities and to enter into contracts with public or private entities and individuals to assist in developing and making available family planning and population growth information (including educational materials) to all persons desiring such information (or materials)."

OPA does not, at the present time, provide grant or contract support for the pursuit of population education activities. It has provided audiovisual materials to population educators and supported the production of Options: A Teacher's Guide to the Report of the Commission on Population and the American Future.

Current Activities

As part of the effort to enlist federal agency support for population studies in the nation's schools and colleges, OPA organized, chaired and staffed the Subcommittee on Population Education of the Federal Interagency Committee on Education. There are numerous references in the report, Population Education and the Federal Role, to environmental matters; several federal agencies concerned with environmental affairs serve on the subcommittee, namely, the Council on Environmental Quality and the Environmental Protection Agency, as well as the two agencies now merged into the Department of Energy—the Energy Research and Development Administration and the Federal Energy Agency.

The report of the subcommittee recommends that population education be considered a national educational priority and that the federal government provide leadership and support to promote this subject in both formal and non-formal educational settings, as well as provide assistance to increase the public's knowledge of population matters

affecting the United States and the world. It is anticipated that the subcommittee will be reconvened by OPA in the near future to work out implementation strategies and action programs.

In the Congressional area, OPA will work cooperatively with the Congress on two important legislative initiatives which pertain to federal agency involvement in both population and environmental education matters—the House Select Committee on Population and the pending Population Education Act.

OPA is working directly with National Institute of Education staff to develop a comprehensive computer compilation of population sources and resources. The OPA will make the readout available to population organizations and individuals conducting population education programs and to relevant federal agency staff.

OPA is also compiling a materials inventory of population and environmental education materials of federal agencies.

Summing up, the population education function of OPA is to assist the American public in recognizing the long-range implications of population growth and change; to create opportunities for the individual to consider and examine contemporary problems; and to make the public aware of population issues as they relate to economic, political, social and environmental issues in our society and to the size, rate of growth and distribution of our nation's population.

---Submitted by:

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October 28, 1977

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

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The Department of Housing and Urban Development (HUD) is the principal Federal agency responsible for programs concerned with housing needs and improving and developing the nation's communities.

To carry out its overall purpose of assisting the sound development of our communities, HUD administers mortgage insurance programs that help families to become home owners; a rental subsidy program for lower income families who otherwise could not afford decent housing; and programs that aid neighborhood rehabilitation and the preservation of our urban centers from blight and decay. HUD also protects the home buyer in the marketplace and fosters programs that stimulate and guide the housing industry to provide not only housing but a suitable living environment.

The Department of Housing and Urban Development was created to administer the principal programs which provide assistance for housing and for the development of the Nation's communities; to assist the President in achieving maximum coordination of the various Federal activities which have a major effect upon urban community, suburban, or metropolitan development; to encourage the solution of problems of housing and community development through States, cities, counties, and other units of general local government and through the promotion of interstate, regional, and metropolitan cooperation; to encourage the maximum contributions that may be made by vigorous private home-building and mortgage lending industries to housing, community development, and the national economy; and to provide for full and appropriate consideration, at the national level, of the needs and interests of the Nation's communities and of the people who live and work in them.

HUD was established by the Department of Housing and Urban Development Act of September 9, 1965, effective November 9, 1965 (79 Stat. 667; 42 U.S.C. 3531-3537).

The Assistant Secretary for Community Planning has departmental responsibility for implementing policies and procedures for the protection and enhancement of environmental quality pursuant to the National Environmental Policy Act of 1969 and the Housing and Community Development Act of 1974. Environmental activities encompass the development of environmental standards, policies and procedures for energy conservation, codes modernization and administration, and strategies for the amelioration of environmental problems such as natural hazards, air and noise pollution. Emphasis is placed on environmental and land use planning and environmental management practices.

Among publications of the Department of Housing and Urban Development of potential interest to environmental educators are:

A Land Use Resources List Emphasizing Community Development
(HUD-412-A);

Environment, Growth, Land Use (HUD-468-PDR);

Environmental Reviews at the Community Level: A Program
Guide (HUD-399-CPD2);

Open Space, Parks, Recreation Planning Reports: A Selected
Bibliography with Abstracts (HUD-CPD-91);

Workshop on Urban Open Space (ASLA-1).

Written requests for these and other HUD publications should be directed to the Publication Service Center, Room B-258.

--Excerpted and modified from:

1977/78 United States Government
Manual, pp. 283-300*

*The publications listed above were supplied by HUD in response to a request for materials appropriate to environmental education.

BUREAU OF INDIAN AFFAIRS

Department of the Interior
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The Bureau of Indian Affairs was created in the War Department in 1824 and transferred to the Department of the Interior at the time of its establishment in 1849. The Snyder Act of 1921 (42 Stat. 208; 25 U.S.C. 13) provided substantive law for appropriations covering the conduct of activities by the Bureau of Indian Affairs. The scope and character of the authorizations contained in this act were broadened by the Indian Reorganization Act of 1934 (48 Stat. 984; 25 U.S.C. 461 et seq.).

The principal objectives of the Bureau are to actively encourage and train Indian and Alaska Native people to manage their own affairs under the trust relationship to the Federal Government; to facilitate, with maximum involvement of Indian and Alaska Native people, full development potentials; to mobilize all public and private aids to the advancement of Indian and Alaska Native people for use by them; and to utilize the skill and capabilities of Indian and Alaska Native people in the direction and management of programs for their benefit.

FUNCTIONS

In carrying out these objectives, the Bureau works with Indians and Alaska Native people, other Federal agencies, State and local governments, and other interested groups in the development and implementation of effective programs for their advancement.

The Bureau seeks for them adequate educational opportunities in public education systems, assists them in the creation and management of educational systems for their own benefit, or provides from Federal resources the educational systems needed; actively promotes the improvement of their social welfare by working with them to obtain and provide needed social and community development programs and services; works with them in the development and implementation of programs for their economic advancement and for full utilization of their natural resources consistent with the principles of resource conservation.

The Bureau also acts as trustee for their lands and monies held in trust by the United States, assisting them to realize maximum benefits from such resources.

Several environmental education programs are in operation in schools under the jurisdiction of the Bureau of Indian Affairs. Information from the Office of Indian Education Programs, BIA, describes the program of Navajo Community College, Tsaile, AZ, and Chilocco Indian School, Chilocco, OK.

--Excerpted and modified from:

*1977/78 United States Government
Manual, pp. 315-316.*

BUREAU OF LAND MANAGEMENT

U.S. Department of the Interior
Washington, DC 20240

Environmental education activities of the Bureau of Land Management comprise a substantial part of the Bureau's environmental awareness program. This program was conceived in and coordinated by the Division of Environmental and Planning Coordination, which is responsible for the Bureau's environmental assessment system and multiple use planning system. For each system, the Division is responsible for coordinating policy; procedures; implementation strategy; training; program size, nature, and priority; linkages with other Bureau systems and other agency systems; and evaluations of systems operations and adequacy.

Authorizations and directions for this environmental awareness program reside, principally, in The National Environmental Policy Act of 1969 (as amended) and the Federal Land Policy and Management Act of 1976. Both of those acts declare national policy and establish goals and objectives that necessitate the treatment of environmental education as an integral aspect of public land management. Education is a process that changes the learner, and both of the aforementioned acts require processes for environmental management that make learners of all who participate in or are affected by land management. Being members of a community of interdependent parts, we are all changed by (educated by) the entities and dynamics of our environs--constantly. Recognizing this fact and calling attention to its implications for informed decisionmaking is the objective of the Bureau's environmental awareness program.

The Federal Land Policy and Management Act (FLPMA) requires that the public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values utilizing harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment. The Bureau of Land Management (BLM), acting for the Secretary of the Interior, is--with public involvement and consistent with the terms and conditions of this Act--to develop, maintain, and when appropriate, revise land use plans which provide by tracts or areas for the use of the public lands. Among other requisites in the development and revision of these land use plans, BLM is to use and observe the principles of multiple use and sustained yield; use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences; and give priority to the designation and protection of areas of critical environmental concern. These mandates require that BLM incorporate various kinds and levels of environmental assessment in its planning process.

BLM's environmental awareness program provides for systematic Bureau-wide infusion of what is learned (in environmental assessments of all kinds) into public land management endeavors and for facilitating the communication of these findings to entities outside the Bureau. This duty relates directly to the National Environmental Policy Act's (NEPA's) mandate to "recognize the worldwide and long-range character of environmental problems and, where consistent with the foreign policy of the United States, lend appropriate support to initiatives, resolutions, and programs designed to maximize international cooperation in anticipating and preventing a decline in the quality of mankind's world environment; make available to states, counties, municipalities, institutions, and individuals, advice and information useful in restoring, maintaining, and enhancing the quality of the environment; and initiate and utilize ecological information in the planning and development of resource-oriented projects."

The BLM's environmental awareness program is coordinated with the Department of the Interior's environmental education and public participation programs. The environmental education program of the Department is designed to create public and employee awareness, understanding, and application of the concepts and practices of sound ecosystems management (managing the ecosystems that comprise our lands to the best of our ability, which includes planning, construction, operations, and maintenance). It is the policy of the Department to offer the public good-faith opportunities to participate in decisionmaking processes leading to actions which may significantly impact or interest citizens. "Citizens" and "public" are defined as affected or interested individuals, organizations, interest groups, and officials of local, state, and other federal government agencies. Because of the NEPA context ("mankind's world environment"), BLM attempts to include consideration of environmental concerns abroad, too.

Environmental assessment in BLM is a multimillion dollar effort. As such, the means (inventories, plans, environmental assessments pursuant to NEPA) must be directed to the attainment of some specified ends. What is learned in environmental assessments (we now document more than 10,000 each year) must be factored into the Bureau's information base; we can ill afford having such findings go on-the-shelf after being applied to an imminent decision. The information must be disseminated. It has utility for subsequent decisions in almost all instances and for other decisionmakers. One of the primary ends of public land management is environmentally astute decisionmaking. This requires a sharing of information and data from state-of-the-art environmental assessments. This sharing is the core of BLM's environmental education activities and will become more so in the future.

As we learn more, through the assessment process, about the opportunities and constraints in achieving and maintaining life-sustaining environs, that heightened awareness is used in updating land use plans, in revamping procedures, and in redirecting and upgrading the training conducted by the Bureau for its employees, for other agencies,

and for the public. Under FLPMA, the Bureau's charter to take positive action on multiple land-use planning will necessitate a more sophisticated information systems capability at all levels of management and across a wide spectrum of program areas. To meet these needs, a Strategic Plan for Information Systems Management has been developed. It is designed to satisfy user needs and to eliminate overlaps, inefficiencies, and major gaps in information management which have caused fragmentation of systems meant to achieve environmental goals. It provides a repository for and automated access to information comprising the substantive content for environmental education.

A precept of BLM's environmental awareness program is that we--as other Executive Branch entities--are organized in a departmentalized way that is not conducive to ecomanagement or management of the whole system that consists of man and/in environment. Our institutions support a components or analytical/reductionist approach to land management, but provide little insight for better understanding of the ecosphere. Accordingly, BLM has begun to key its environmental education to an holistic or systems approach. This is an ecological approach as required by NEPA and by FLPMA.

But ecology does not offer values which would solve ethical and social problems concerning appropriate land use. Like economics, it can only offer descriptions of the interrelationships of environmental operants. Ecomanagement needs goals, as does environmental education. Author William Arrowsmith has noted that "If a student is serious, he rightly asks of his education that it give him some sense of the end on behalf of which the whole process takes place."

Environmental education in BLM has as its context the achievement of environmental goals, ends that this Nation has agreed on. The paramount goal of the United States is to guard the rights of the individual, to ensure his development, and to enlarge his opportunity. The goals set forth in NEPA and FLPMA are subsets of that goal, and they comprise the standard against which we are to measure the effectiveness of Bureau programs. Our environmental education will provide (and is presently providing to some extent) opportunity to utilize ecological information for measurement of Bureau progress toward those goals. As we become more adept at systems simulation and modeling for environmental assessment, our environmental education endeavors will have more substance. At present they rely very heavily on basic human perceptual mechanisms for sensing the quality of environmental entities and dynamics. These perceptions and a "components approach" can only give us partial clues to environmental conditions. Much of the anticipated direction in BLM's environmental awareness program will be the turning to more of a systems focus, emphasizing synthesis of data and information rather than analysis, but recognizing that both are needed.

Coordination of BLM's environmental awareness program is effected through one full-time position in the Bureau's Washington Office, four positions in BLM State Offices, and three positions in BLM District Offices. The incumbents work with Bureau employees, schools, and the general public and other agencies in disseminating environmental information and in developing environmental education programs and activities. Should the Department of the Interior make environmental education a high priority program and make more staff and/or money available, the Bureau would hope to provide for an environmental awareness coordinator in each of its state offices. Further development of environmental education guidebooks such as All Around You (for which the Bureau finds a great demand) would also be undertaken.

The Bureau presently conducts environmental education techniques training in conjunction with training in public affairs for its own employees. Annually, a Bureau training catalog offers courses in these subjects to its state offices.

The BLM is also working closely (through some of its field offices) with local elementary and high schools as well as with institutions of higher learning. The Washington Office environmental awareness coordinator visits these active programs periodically and prepares evaluations of their effectiveness and possible application in other locations. At this time, there are so few of these programs that they are monitored on an individual basis. Approximately two hundred persons have been served directly by the teacher training aspects of this BLM program. About 12,000 persons have been served directly by BLM programs in environmental education provided to schools. At some fifty Youth Conservation Corps sites, the Bureau of Land Management has provided training for 357 persons.

The complexion and intensity of BLM's environmental education activities will much depend on the findings of a Department of the Interior survey of Bureaus (begun February 1, 1978) and the conclusions drawn therefrom.

--- Submitted by:

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February 15, 1978

FISH AND WILDLIFE SERVICE

Department of the Interior
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Since its establishment, the U.S. Fish and Wildlife Service (FWS) has had the responsibility for providing Federal leadership in conserving, protecting, and enhancing fish and wildlife and their habitat for the benefit of people. These benefits range from recreational, aesthetic and environmental to educational.

Primary responsibility for the scope and direction of environmental education activities for the Fish and Wildlife Service rests within the Interpretation and Recreation Program. This Program is responsible for fostering public understanding and appreciation of fish and wildlife and their habitats, man's role in his environment and providing for public enjoyment of these resources on Service lands. This goal is achieved through four long-term objectives:

1. to protect and maintain the nation's historic and cultural objects, wilderness and other natural areas on Service lands.
2. to encourage environmental understanding by making Service resources available for educational purposes.
3. to promote a conservation ethic by providing an enjoyable and informative visitor experience through interpretive programs on Service lands.
4. to provide for the public enjoyment on Service lands of high quality recreational benefits which are compatible with fish and wildlife and their habitats.

The main emphasis of the I&R Program is directed toward educational activities--that is, a commitment to "educate" or inform the public in matters relating to fish and wildlife resources and other environmental matters. Using a very broad definition, it can be said that environmental education is interwoven into most of the public use activities conducted by the Fish and Wildlife Service. To carry out these broad "educational" functions, several programmatic activities are involved. These are: 1) environmental education as a formal educational process, 2) interpretation as an informal process, and 3) information. Brief descriptions of these activities follow below.

Environmental Education

By FWS programmatic definition, formal environmental education can only occur when students are taught by a qualified teacher using a lesson plan (as part of a structured curriculum) with specific objectives to be accomplished. Thus, environmental education may be part of a school curriculum and is designed to reach students from kindergarten through high school and college.

Environmental education as defined is not taught by FWS personnel but by professional teachers, generally from the sponsoring school. FWS personnel do, however, meet with school and community leaders and encourage them to begin EE programs. In addition, FWS sponsors and conducts teacher workshops, helps develop lesson plans, provides technical information and assistance and other services as required in order to fully prepare the teacher for the EE experience with their students. Designated study sites on national wildlife refuges and national fish hatcheries are made available for use by these groups.

This general approach has proven to be extraordinarily successful and is generally recognized as being one of the better approaches to federal involvement in environmental education at the field station level.

Some of the reasons for this success are:

1. It is a community program run by local teachers/schools. It is not a "big brother" program, since we only provide sites and expertise on a requested basis.
2. Programs are designed to meet local needs as well as to inform the users of broader and more diverse environmental concerns.
3. Large sums of FWS dollars and manpower on a continuing basis are not required for success.

Interpretation

Whereas Environmental Education is a formal process for "educating" the public, interpretation is the informal process. EE requires students in a structured situation with measurable objectives to be achieved. They are "captive" by the fact that they are in a detailed learning situation. Interpretation, on the other hand, involves people who are willing participants. They may be families or individuals, young or older or any other combination. People in this learning situation may be exposed to the personal services of an interpretive specialist or may embark on any number of self-guiding experiences. They are exposed to demonstrations of resource management as well as the impacts certain actions may have on fish and wildlife resources. Regardless of choice, an environmental message is generally interwoven into the communicating media.

Information

This activity consists of news releases, feature stories, radio and TV spots, publications and other similar media. These media may focus, in part, on environmental actions and their resultant effects.

In brief, the preceding points demonstrate that the FWS views education, interpretation and information as major vehicles for communicating with the public in an effort to: 1) help people understand their relationships with natural and manmade systems and how their actions might affect these systems; 2) foster understanding and appreciation of fish and wildlife and their habitats; and 3) stimulate the development of a long-lasting environmental/conservation ethic.

Although the FWS has been involved in conservation education for many years, it was not until the late 1960's that a decision was made to develop an environmental education program based upon community involvement. The result of these efforts has been the development of materials and processes that now serve as the basis and national standard for our formal EE programs. The base materials produced were:

We Can Help

A teacher's guide to environmental education activities.

Outdoor Classroom

A series of 24 environmental education outdoor activity guides.

Notes on Coordinating A Community Program in Environmental Education

A series of notes of "what worked" for the FWS while helping local people satisfy their educational needs.

Educational Use of Public Lands - A Course for Resource Managers

Suggestions for a course to prepare resource managers for the role of being a host to teachers and students and an expeditor of environmental education.

Face to Face - Building Programs in Environmental Education

A series of short interviews with educators and land managers who have become active in environmental education programs.

Environmental Education Methods for Teachers

How to set up a credit course with a participating college or university.

Information on these materials is available from Jenny Publishing Company, 57 Queen Avenue South, Minneapolis, Minnesota 55405.

The We Can Help package is being supplemented in the near future with activity guides dealing with fishery resources, a training manual for land managers and activity guides focusing on natural energy systems.

As these new materials evolve, the concepts will be integrated into existing interpretive and information programs so that the broadest possible spectrum of the American public may be reached.

Although the Fish and Wildlife Service does not provide grants nor other forms of direct fiscal support to communities, assistance in the form of services is available at many field stations. These services include such things as conducting teacher workshops, helping prepare lesson plans, providing technical review and assistance and making FWS lands available for use by schools and other organized groups.

Environmental education activities, including applicable portions of interpretation, recreation and information, will be receiving increased emphasis beginning in FY 1979. Of all permitted public use activities on FWS lands, environmental education activities rank the highest and as such, environmental concerns and the opportunity for environmental understanding will be interwoven into as many public use and public service programs as possible.

In summary, the Fish and Wildlife Service places a high value on all forms of environmental education, both formal and informal, and is striving toward serving all age and interest groups in this effort. It is the firm belief of the Service that the key to success is individual and community action; therefore, the role of the agency is that of a catalyst and not that of a "big brother." Although direct funding to outside interests is not available for environmental education from FWS, assistance is available in the form of certain services and materials. A list of field stations and specific information may be obtained by writing to the U.S. Fish and Wildlife Service.

--Submitted by:

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November 29, 1977

GEOLOGICAL SURVEY

Department of the Interior
National Center
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Reston, VA 22092
(703) 860-7444

The Geological Survey was established by the act of March 3, 1879 (20 Stat. 394; 43 U.S.C. 31), which provided for "the classification of the public lands and the examination of the geological structure, mineral resources, and products of the national domain." The act of September 5, 1962 (76 Stat. 427; 43 U.S.C. 31(b)), expanded this authorization to include such examinations outside the national domain. Topographic mapping and chemical and physical research were recognized as an essential part of the investigations and studies authorized by the act of March 3, 1879, and specific provision was made for them by Congress in the act of October 2, 1888 (25 Stat. 505, 526).

Provision was made in 1894 for gaging the streams and determining the water supply of the United States (28 Stat. 398). Authorizations for publication, sale, and distribution of material prepared by the Geological Survey were contained in several statutes (43 U.S.C. 41-45; 44 U.S.C. 260-262).

The broad objectives of the Geological Survey are to perform surveys, investigations, and research covering geography, geology, and the mineral and water resources of the United States; classify lands as to mineral character and water and power resources; enforce departmental regulations applicable to oil, gas, and other mining leases, permits, licenses, development contracts, and gas storage contracts; and publish and disseminate data related to the foregoing activities.

Program areas listed in the U.S. Government Manual for the Geological Survey include: Conservation, Geology, Topographic Mapping, Water Resources, and Land Information and Analysis Programs.

The Geological Survey has an extensive publications program. Many of these publications are available through the Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202. Maps are also available from that address. Film inquiries should be directed to the Visual Services Branch, 303 National Center, Reston, VA 22092; (703) 860-6171.

Single copies of a variety of nontechnical leaflets on earth science subjects and Geological Survey activities are available on request from the Superintendent of Documents, Government Printing Office, Washington, DC 20402. Bulk quantities may be purchased from the Branch of Distribution (address above).

--Excerpted and modified from:

NATIONAL PARK SERVICE

*Department of the Interior
Washington, DC 20240*

Background Information for Environmental Education in the NPS

During the 1960's, the National Park Service (NPS) experienced a new phenomenon in many of its national parks. Human visitation was soaring. Traffic-jammed roads blocked entries into many parks. Campgrounds were packed. Thousands of campers overflowed into meadows and caused roads to close.

And with the new crowds came new problems. Meadows were trampled. What was once pine duff in campgrounds turned into hard, compacted, concrete-like soil. Seedlings in campgrounds could not become established; regeneration simply could not occur. More traffic and more people set off a rise in the crime rate. The ranger image too often became the cop image.

Naturally, the Service became vitally interested and began taking a closer look at the unexpected changes. They found that people were streaming into the parks, not to destroy them, but to use them. For the first time the National Park Service recognized that people could actually love their parks to death.

Problems seen as those for some future time became problems of the day. Redesigned roads and traffic patterns, park-managed "mass" transportation systems, and more and easily accessible restrooms were needed to serve the great numbers of people—most of them new visitors to the parks—as soon as possible.

Equally important as the technological needs, however, was environmental quality of the park sites. NPS management understood that the lack of it would be an obvious threat to the longstanding integrity of the Park Service.

In his book, Sand County Almanac, Aldo Leopold prophetically had cried out the need for a national land ethic. The challenge, as presented to the NPS by its Director at that time, George B. Hartzog, Jr., was to get to the nation's people and raise their environmental consciousness before they arrived at a park. Therefore, in 1968, environmental education was introduced into the National Park Service. It grew simultaneously with a national concern for environmental quality.

Legislation and Mission of
the National Park Service

Although famous Yellowstone National Park was established by the signature of President Ulysses S. Grant on the bill for that purpose, March 1, 1872, the National Park Service did not become an official agency of the federal government until Congress passed its enabling Act of August 1916. In that Act the national park purpose was set out:

" . . . to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

Personnel of the National Park Service have seen in this general statement of purpose a logical rationale for carrying out environmental education within the agency. One might ask, "Wasn't that why the phrase 'by such means' was included?"

Nevertheless, when legal basis for Departmental involvement in environmental education programs was sought almost half a century after the enabling Act, an Associate Solicitor wrote—only after a thorough legal search—a memorandum on March 17, 1972 to the Assistant Secretary, Fish, Wildlife, and Parks that there was statutory legislative authority for the efforts. Cited in this memorandum were (1) 16 U.S.C. 17j-2(e), which granted the NPS legislative authority for interpretive activities; and legislation which had specific regard to environmental education, (2) the National Environmental Policy Act of 1969 (83 stat. 852, Sections 2, 101(a), (b), and (f)), (42 U.S.C. 4332), which requires federal agencies to disseminate environmental information; and (3) the Environmental Education Act (20 U.S.C. 1531-1536), which authorizes the cooperation of all federal agencies with the Secretary of Health, Education, and Welfare whose Department was selected for primary responsibility for environmental education in our nation.

The management rationale behind this agency's placement of environmental education within the scope of its endeavors was that (1) the NPS, as a federal agency was responsible for the wise stewardship of some of the nation's most valued lands, waters, and mineral resources, and needed to forestall environmental degradation in order to maintain their integrity; (2) the NPS had a continuing role requirement to produce effective environmental impact statements; and (3) the NPS, as an agency of Government, worked with scientists, resource managers, and other professionals from many parts of the globe (as well as other Americans) who used the National Park areas for their research studies and/or as exemplars for emulation in their own nation's early beginnings of a national park system.

History and Description of Environmental Education Programs in the NPS

On February 11, 1968, at the Lincoln Boyhood National Memorial, NPS Director George B. Hartzog, Jr., announced a series of new programs that collectively he first called "A Cooperative Program for Environmental Conservation." In a memorandum to all NPS employees which followed this announcement (dated May 1, 1968), he included these statements:

"The concept of total environment includes man and all of his works. His history is in effect an outgrowth of environment at earlier periods. The natural world and man's cultural heritage join in support of the present environmental education concept."

Director Hartzog went on, in this memorandum, to announce—as he had at the Lincoln Boyhood National Memorial earlier—the undertaking of two specific programs in environmental education: the development of curricula-integrating materials for use in schools, and the establishment of environmental study areas within park areas, in which programs were to be "developed and carried on in cooperation with existing school systems." Both programs were to be geared toward the young. They were to be known later by their acronyms, NEED and NESAs, respectively.*

Through Environmental Conservation Memorandum 2, Director Hartzog sent NPS Regional Directors specific guidelines for developing and operating Environmental Study Areas. In order to ensure a uniform system for designation of such study areas, sample inventory forms and maps were sent with the guidelines. In Environmental Conservation Memorandum 3 of May 16, 1968, he defined an Environmental Study area as

"a land, or land and water, area whose natural, historical or non-nature characteristics are effectively combined with an organized study program to provide an understanding of the total environment and the individual's relationship to it."

As one may easily deduce, the Environmental Study Areas program—which shortly after birth was renamed the National Environmental Study Areas program—has always been site oriented. This is the program that has become the mainstay of the NPS' thrust in environmental education. As described in a 1976 NPS brochure,

"National Environmental Study Areas (NESAs) are natural or cultural sites. . .with high potential for, and active programs in, environmental education. Usually, the schools and/or parks involved with these sites develop study guide materials which aid students in understanding the processes and dynamics to be

*NEED: the program of National Environmental Education Development, and
NESAs: the program of National Environmental Study Areas

found there, and help them to relate the area's resources to people's use of them."

The NESA program soon evolved to include areas off park sites, but these also had to meet a list of specific criteria to receive the NESA designation (see attachment). To be eligible for such designation, the sponsors of any area have to submit application forms to the National Park Service, along with samples of study materials used in ongoing programs. Although especially appealing to schools, this program is open to any interested groups.

Paralleling the NESA program from the beginning, but in contrast to it in that it was materials rather than site oriented, has been the National Environmental Education Development (NEED) Program. Sponsored by the National Park Foundation, NPS produced the NEED curriculum-integrating materials for school grades kindergarten through eight. The program is multidisciplinary, uses the Strands conceptual approach, and was fitted originally against the most often occurring curricula of elementary grades of the nation. All its materials—students' classroom books and outdoor books (grades 3-6), teachers' guides (grades 3-6) and teachers' resource book (kindergarten-2), and filmstrips (grades 7 and 8), were published by Silver Burdett of Morristown, New Jersey. Although its concepts are still used and the materials still sold, the program, as a development of materials, ceased in 1976 with release of the filmstrips.

In 1971 a third NPS program was introduced in the array of those aimed at environmental education: NEEL (National Environmental Education Landmark) program. This has been a program designed to give high level Government recognition to nationally significant environmental study areas already bearing the NESA designation and deemed to have programs and sites of exceptional quality.

From the beginning, the various regions of the NPS have been encouraged to use their initiative in developing sound approaches to environmental education. A major program that came out of such initiative was STEP (Students Toward Environmental Participation). Since its inception in 1971 by NPS' Southeast Regional Office in Atlanta, this program, which is aimed at high school students, has been adopted in 22 states near NPS areas. As are most NESA programs, STEP programs are in conjunction with educational institutions.

Yet another EE program—this one begun by the Western Region of the NPS—has been gaining momentum across the nation after rapid expansion in the states of Arizona and California at the time of its budding, 1973. This is the Environmental Living Program. It is a live-in, overnight experience for children that may take place at any historic, prehistoric, or cultural site where the interactions and interdependence of people and their immediate surroundings (natural and human-built) can be seen. The children play out roles they have chosen and relate the past, as found at that particular place, to themselves in the present. The children's teachers attend planning

workshops in advance and prepare the students for the overnight experience by thorough study and discussion in the classroom ahead of time. The Environmental Living Program is used by all grade levels with all content areas.

Levels of Involvement (National/Regional/
Local) in Environmental Education

Environmental Education programs of the NPS are national in scope, regional in administrative direction, yet local in nature. As already noted, any of the NPS' nine regions or almost 300 individual park areas may develop an E.E. program in conformance with standards of an already existing NPS program. Any of the regions, or individual park areas with their regional office's blessings, may, in turn, initiate and develop new E.E. programs. If these seem to be valid and viable approaches to the coordinating office in Washington, D.C. (WASO), they may become national projects, as the Environmental Living Program has.

There is no rule of thumb for determining levels of involvement by NPS personnel who work in E.E. Those persons stationed in individual parks most usually work at the local levels—in and near their park sites. Working relationships with members of the local school system and other community organizations are common. Personnel stationed in regional offices are likely to travel, at least occasionally, to park areas throughout their regions, either to give advice on program implementation or to instruct in E.E. workshops for teachers and/or park personnel. Either group may attend national training sessions or conferences with authority of their regional directors.

Personnel who work in NPS' E.E. coordinating office (WASO) in Washington, D.C. may work across the regions of the agency, with approval of their supervisory Assistant Director. When budgets permit, they may attend conferences or training sessions which are sponsored by organizations recognized as national leaders in environmental education. At the federal department level, they work with the Department of Interior's Steering Committee for Policy in Energy/Environmental Education Activities, which is attempting to give cohesion to departmental efforts in E.E.; across federal departments, they work with DHEW's Federal Interagency Committee on Education's Subcommittee on Environmental Education to help identify national needs of and goals for environmental education, make recommendations as to Government E.E. policy, and to keep themselves aware of E.E. programs and activities within the various federal agencies involved in the field.

The NPS has tried to remain flexible concerning the administrative arrangements possible for outside organizations that wish to work with it in order to accomplish environmental education. It, therefore, has expanded its E.E. overall program so that today it has a number of NEED camps run by private organizations affiliated with it, as well as a number of cooperative agreements, and institutes that offer highly specialized programs for a wide range of age groups with differing levels of cognizance.

Target Audiences of Environmental Education Efforts

One hundred and twenty-seven NESAs now exist in 84 park areas, while 53 NESAs are off park sites, in operation by public schools and private foundations. In 1976, over 400,000 teachers and students (mostly of elementary grades) participated in these NESA and other NPS-led E.E. programs—with over 5,000 of the teachers attending teacher workshops to gain knowledge in E.E. skills and concepts, in addition to these visits.

The major target audience for E.E. remains elementary grade school children and their teachers, particularly children of the fifth and sixth grades, or the ages 10 through 12. It is the age of "joining" and "belonging,"—the forming of close ties with friends of the same sex and strongly verbal peer pressure. A good age for enunciating and evaluating values for the first time, if it has not happened before.

A second major target audience for NPS environmental education is the general public—the park visitors who get involved in regular interpretive activities, such as the guided tours or slide shows with lectures. Of course, this "general public" is not really all that general, for studies indicate that the overwhelming proportion of these persons are members of a white, middle class family group made up of mother and father (young adults of 25-45 years), and a couple of children (2 to 15 years).

The older couple sans offspring, particularly the older retired couple, has begun showing up more often in park visitation of late, and entering into regular park interpretive activities, also. Some parks include environmental concepts and messages in the course of the "regular" interpretive activities, while some include almost none.

It is worth mentioning, also, that environmental education has been the primary factor in raising the statistics of minority ethnic group visits to parks, for NPS areas in or near major urban centers have tended to be those most active in environmental education programs with inner city school systems.

Methods/Techniques/Procedures Utilized in NPS E.E.

Some of the methods and techniques used in NPS E.E. have already been described: development and use of written materials in classrooms (the NEED program), and role playing (in the Environmental Living Program).

There are, of course, also the techniques of exhibit display—such as the build-it-yourself solar cookers used also in energy demonstrations—and the establishment of NPS-managed mass transportation systems in order to curb the physical and chemical impacts of vehicles in the parks, plus the environmental messages that accompany these.

The major method used in NPS E.E., however, remains the Strands Conceptual Approach developed in the NEED program. This approach emphasizes the concepts of similarity/variety; patterns; interrelationships/interdependence; continuity/change; and adaptation/evolution. When seen as a whole, the Strands can become a systems approach in environmental education. They can be used to teach, interpret, or systematically explore—at any level of scientific or artistic endeavor—any facet of our many environments. This approach is commonly used in the NESA program to observe, collect data, and compare at least two, differing ecosystems (including the flow of energy through them), particularly the interfaces of the ecosystems where comparisons can most readily be observed and from which inferences may be drawn.

Products/Publications Related to NPS E.E.

The National Park Service's NEED program developed and produced a series of written materials entitled "Adventure in Environment" through National Park Foundation sponsorship. These covered materials for the kindergarten through eighth grades. (All may be obtained from Silver Burdett Company, 250 James Street, Morristown, New Jersey, 07960.)

The individual items in this series are:

1. Teacher's Resource Book (Grades K through 2). 284-page book, with nine pages introduction—including a matrix for matching the conceptual approach against the five disciplines—and many illustrations.
2. Duplicating Masters (accompanies Teacher's Resource Book). Fifty art duplicating masters for use with the lessons in #1 cited above.
3. Adventure in Environment (Teacher's Guide). (One each for grades 3 through 6.) 30 pages.
4. Adventure in Environment (Student Classroom Books). (One each for grades 3 through 6.) 76-80 pages. Multidisciplinary; some color, some black and white photos and art work.
5. Exploring Your Environment (Student Outdoor Book). (One each for grades 3 through 6.) Multidisciplinary, but heavier on science subjects. 40 pages with much art work.
6. NEED Sound/Color Filmstrip Package (with Teacher's Guide). Boxed set of four filmstrips and four cassettes (with both audible and inaudible picture-change signals) for junior high and higher elementary school grades. Titles of individual filmstrips are: (1) LEISURE: THE ENVIRONMENTAL IMPACT; (2) LIFE STYLES: THE ENVIRONMENTAL IMPACT; (3) PEOPLEPARKS; and (4) THE NATIONAL PARKS STORY.

The Teacher's Guide provides a complete lesson plan and entire audio script for each filmstrip.

7. Picture Packet (with teacher's manual). Large, cardboard wall-mounting pictures for use with "Adventure in Environment" series.

Other documents produced by or for environmental education in the NPS are:

1. National Environmental Study Area: A Guide. By National Park Service, 1972. 56 pages, paperback with black/white photos. Multidisciplinary. (May be obtained as item #1972-0-469-326 from Superintendent of Documents, U.S. GPO, Washington, D.C. 20240.)
2. A Guide to Planning and Conducting Environmental Study Area Workshops. Produced cooperatively by NPS and National Education Association, 1972. 50 pages, paperback. (Obtainable from NEA, Publications Division, 1201-16th Street, N.W., Washington, D.C. 20036.)
3. Environmental Education/Facility Resources. A report from Education Facilities Laboratories, developed cooperatively with NPS and NEA, 1972. 64 pages, paperback. (May be obtained from EFL, 477 Madison Avenue, New York, New York, 10022.)
4. Environmental Living Program. Boxed kit of four booklets and poster developed cooperatively by NPS and the American Revolution Bicentennial Administration, 1975. (May be obtained as stock item #024-00617-6 from Superintendent of Documents, U.S. GPO, Washington, D.C., 20240.)
5. Consider the Process of Living. By William Eddy, Jr., Gonzalo Leon, and Robert Milne, 1972. 125 pages, paperback. Color photos. (Published and may be obtained from the Conservation Foundation, 1717 Massachusetts Avenue, N.W., Washington, D.C., 20036.)
6. Environmental Education: Reference Sources for Development of Programs and Sites. By National Park Service. 46-page pamphlet. (Obtainable as stock item #1974-0-547-690 from Superintendent of Documents, U.S. GPO, Washington, D.C., 20240.)

There are still other documents that have been produced for environmental education in the NPS. These have been written by individual parks or NPS regional offices. Two of these whose application and transferability to other park sites is pertinent are: "The Strands Walk," by Bill Taylor of the NPS and "The 'environmental living' project," produced by NPS' Western Regional Office in San Francisco. (These may be obtained, respectively, from Muir Woods-Point Reyes Natural History Association, Point Reyes National Seashore, Point Reyes, California, 94956, and NPS Western Regional Office, 450 Golden Gate Avenue, San Francisco, California, 94102.)

Funding Devoted to/Available to NPS E.E.

Within the Department of Interior, of which the National Park Service is an agency, there is no line item within the budget sent up to the Office of Management and Budget. Therefore, any monies devoted to NPS environmental education comes from the budget item allowed for "Interpretation." Environmental education competes, within regions and within parks, with all other, so-called "regular" interpretive activities.

There has been an exception in the past: The National Park Foundation, in sponsoring the production of materials in the NEED Program, supplied the monies for the publication of the materials and for contracts incurred.

Measures of Success and/or Lack of Success in NPS Programs of E.E.

There have been no statistically reliable and valid studies made to measure the success of use of NPS environmental education programs. Several informal efforts were put forth at one time to measure the information some students held prior to involvement in the NEED program versus that held after a certain amount of involvement. But these, as stated, were highly informal attempts at measurement. No controlled studies have been made to determine attitude changes either. There are, however, a number of testimonials from teachers across the nation to the effect that their students affiliation with E.E. of the NPS—perhaps a NEED camp, NESA studies, or Environmental Living Program experience—has been highly successful.

Grants Offered by NPS E.E. Programs

The National Park Service offers no grants.

Future Plans Related to NPS E.E. Efforts

At the moment, the National Park Service is undergoing a major reorganization. It is anticipated that environmental education will take a leap in emphasis after the new lines of accountability are drawn, as the Assistant Secretary for Fish, Wildlife and Parks wishes a strong emphasis in that direction. Until such changes for redirection occur, the environmental education program of the NPS will continue as it has for the past several years.

---Submitted by:

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December 30, 1977

NATIONAL INSTITUTE OF LAW ENFORCEMENT AND CRIMINAL JUSTICE

*Law Enforcement Assistance Administration
Department of Justice
Washington, DC 20531*

The National Institute of Law Enforcement and Criminal Justice was established by the Congress in 1968 as part of the Law Enforcement Assistance Administration (LEAA), under the Department of Justice. Its mission is to plan and develop research that can help to fashion innovative programs, evaluate them, and promote wide use of those activities that appear to be promising. As part of this activity, the Community Crime Prevention Division has sponsored a number of research activities aimed at discovering how the design and use of the built environment, by the community and its citizens, can contribute to processes which result in greater safety from crime and, often, enhanced well-being and quality of life.

The program is, as such, not "educational" in the strictest sense. However, by dissemination of our findings we can be said to be engaged in "teaching" citizens, designers, public officials, criminal justice personnel, and others what we have learned about the creation and maintenance of safer environments. The implications of this activity, primarily at the local level, may over time be considerable.

One major research and dissemination area concerns the collective responsibility of citizens in the interests of more secure environments. We are trying to educate citizens about the importance of their effective participation and cooperation in the following areas:

1. Prompt and accurate reporting of witnessed crimes in progress, timely and accurate reporting of victimization experiences, and willingness to serve as witnesses in judicial proceedings.
2. Assuming guardianship over each other's property and neighborhood through informal house-watch efforts and surveillance, as well as more organized citizen patrol efforts.
3. Reducing citizen tolerance of such crimes as shoplifting, fraud, and purchase of stolen goods.

We hope through these efforts to increase the citizens' sense of collective control over forces affecting the safety of their neighborhoods and communities.

Another major research area concerns the individual responsibility of citizens to increase their safety and security. Research-based information we have disseminated includes the following:

1. More effective ways for the police to develop and obtain compliance with recommendations based on security inspections of residential and commercial property.
2. Guides for citizen evaluation of their own residential and commercial property, and correction of security weaknesses in construction, hardware, landscaping, and in the patterns of use of various facilities.
3. Guides for the most effective use of alarm systems and private security services.
4. Developing citizen ability to identify, and avoid, hazardous locations and situations in the environment.
5. Developing citizen awareness of the operations of offenders (e.g., burglars, rapists) so that they can employ the most effective counter-strategies.

These efforts aim at increasing the environmental competence of the individual and, thereby, his ability to keep fear and behavioral alteration within the bounds of reality and effectiveness.

Another major research area attempts to increase the understanding of city officials, environmental designers and property managers about the manner in which their actions and decisions can lead to safer environments. Our dissemination in this area has included the following:

1. How basic planning decisions concerning the location, size, and population mixture of residential developments can affect safety and livability.
2. How site plans and building interior plans can influence the safety of these environments.
3. How proper environmental design can make collective citizen security efforts both more likely and more effective.
4. How the proper design and use of neighborhood streets, buildings, and public facilities can lead to greater cohesiveness and less threat from "outsiders."
5. How to promote security through the effective use of such public services as street lighting and the location and pattern of public transportation systems.
6. How proper scheduling and operations, combined with minimal remodeling, can lead to safer and pleasanter school facilities.

These efforts are expected to have an immediate impact on current practice in the area and, perhaps more importantly, also to influence the education and training of future professionals in the area.

Our publications are listed below. Readers desiring a more comprehensive listing and a periodic update should request LEAA Form 1431/2 from the National Criminal Justice Reference Service or should request "User's Guide to NCJRS" for a full listing of other services available.

Our future plans related to environmental education efforts involve strengthening and refining the research base in the areas referred to above, and to disseminating our findings as appropriate.

Current Community Crime Prevention Publications

Many of the following reports can be purchased from the Government Printing Office. All orders to GPO should be prepaid and include the stock number. Please mail directly to Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Where noted, single copies of reports are available from the National Criminal Justice Reference Service (NCJRS), Box 6000, Rockville, Maryland 20850.

-Design Guide for Improving Residential Security

GPO Stock Number: 2300-00251

-Design Guidelines for Creating Defensible Space

GPO Stock Number: 027-000-00395-8

Price: \$2.95 (available from NCJRS)

-Architectural Design for Crime Prevention

GPO Stock Number: 027-000-00161-1

Price: \$2.95 (available from NCJRS)

-Citizen Crime Reporting Projects—National Evaluation Program—Phase I Summary Report (available from NCJRS)

-Citizen Patrol Projects—National Evaluation Program—Phase I Summary Report (available from NCJRS)

-Crime Prevention Security Surveys—National Evaluation Program—Phase I Summary Report (available from NCJRS)

-Operation Identification Projects—Assessment of Effectiveness—National Evaluation Program—Phase I Summary Report (available from NCJRS)

-Victims and Witnesses: Their Experiences with Crime and the Criminal Justice System

GPO Stock Number: 027-000-005-35-7

Price: \$1.00 (available from NCJRS)

-Forcible Rape: A National Survey of the Responses
by Prosecutors

GPO Stock Number: 027-000-00449-1

Price: \$1.50 (available from NCJRS)

-Forcible Rape: A National Survey of the Responses
by Police

GPO Stock Number: 027-000-00450-4

Price: \$1.50 (available from NCJRS)

-Law Enforcement Standards Program: Physical
Security of Door Assemblies and Components

GPO Stock Number: 027-000-00402-4

Price: \$1.00

---Submitted by:

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November 3, 1977

DEPARTMENT OF LABOR

200 Constitution Avenue, NW
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(202) 523-8165

The purpose of the Department of Labor is to foster, promote, and develop the welfare of the wage earners of the United States, to improve their working conditions, and to advance their opportunities for profitable employment. In carrying out this mission, the Department administers more than 130 Federal labor laws guaranteeing workers' rights to safe and healthful working conditions, a minimum hourly wage and overtime pay, freedom from employment discrimination, unemployment insurance, and workers' compensation. The Department also protects workers' pension rights; sponsors job training programs; helps workers find jobs; works to strengthen free collective bargaining; and keeps track of changes in employment, prices, and other national economic measurements. As the Department seeks to assist all Americans who need and want to work, special efforts are made to meet the unique job market problems of older workers, youths, minority group members, women, the handicapped, and other groups.

The Department of Labor, ninth executive department, was created by act approved March 4, 1913 (37 Stat. 736; 5 U.S.C. 611). A Bureau of Labor was first created by Congress in 1884 under the Interior Department. The Bureau of Labor later became independent as a Department of Labor without executive rank. It again returned to bureau status in the Department of Commerce and Labor which was created by act of February 14, 1903 (32 Stat. 827; 5 U.S.C. 591).

The Office of Comprehensive Employment Development Programs (OCED) provides leadership in the development and improvement of nationwide work and training programs and delivery systems which will provide work training and work experience opportunities for disadvantaged, unemployed, and underemployed persons. The OCED has major responsibility for implementation of the Comprehensive Employment and Training Act (CETA) of 1973 and the Work Incentive Program (WIN).

Under CETA, the Secretary of Labor makes block grants to about 444 State and local units of government, the prime sponsors under the act. Prime sponsors identify employment and training needs in their areas and plan and provide the job training and other services required to meet those needs. The various types of programs, such as Institutional Training, On-the-Job Training, Operation Mainstream, Neighborhood Youth Corps, and the Concentrated Employment Program, may be provided by prime sponsors from their CETA grants. The goal of the programs provided under CETA is to encourage and develop the employment potential of disadvantaged, unemployed, and underemployed individuals to enable them to become self-sufficient, contributing participants in the economy.

CETA provides for services at the State and local level (title I), for public service programs (title II), for national programs (title III), for a special program for disadvantaged youth, Job Corps (title IV), and for emergency public service jobs (title VI).

Many individuals employed under CETA are involved in environmental education activities, though environmental education, per se, is not a specific objective of the CETA program.

--Excepted and modified from:

1977/78 United States Government
Manual, pp. 358 ff.

AGENCY FOR INTERNATIONAL DEVELOPMENT

*Department of State
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An example of one innovative technique of education involving Agency for International Development (AID) is the October 1977 conference/workshop under the auspices of the Mohonk Trust involving private voluntary organizations (i.e., Catholic Relief Services, CARE, Lutheran World Relief, etc.) and International Environmental Organizations (NRDC, Sierra Club, EDF, etc.) to develop a mutual understanding of issues and conditions of development. Hopefully these groups with apparent differing goals will learn from each other through discussion of environment and development issues and case studies. We expect this to be one of a series of sessions between the two types of organizations and hope that it will lead to an identification of areas where they may be of mutual support to one another in the conduct of each group's goals.

To effectively carry out the policy of working with host country officials in the joint environmental analysis of AID's sponsored activities, it is necessary to ensure that the involved AID officials are knowledgeable of and conversant on environmental issues. To this end, the Agency has in the past held a series of seminars aimed at upgrading skills of both top level decision makers (through the Brookings Institute) and the Agency's engineering profession (the North Carolina Training Program for Engineers). A new training activity for AID mission personnel concerned with environmental areas is planned for January and March 1978. The curriculum being developed by Clark University will include basics of environment and development issues, case studies, techniques of analysis, design of mitigating programs and evaluation of means to enhance the understanding of host country personnel. Initially two courses of two-week duration each will be held on the campus of Clark University. The course content will be developed in such a way that it can be taken to the field for mission or host country personnel to be incorporated as a standing curriculum component of the ongoing Development Studies Program of AID designed to upgrade the skills of AID staff.

An integrated or cooperative approach to assist the Agency's Regional Bureaus and Overseas Missions as well as the developing countries to build their own capacity for environmental management is also being organized. The program will draw upon the expertise of the Federal Agencies with major environmental activities—the Department of Agriculture and the Department of Interior as well as the Environmental Protection Agency. The Secretariat of the U.S. National Committee for the Man and the Biosphere (USMAB), under the auspices of the U.S. National Commission for UNESCO, will serve as a coordinating mechanism to bring the Agencies together to work on an integrated and cooperative

program of technical assistance and environmental training. AID will provide the funding to enhance the USMAB staff to enable the Secretariat to function in this capacity. The environmental program which will be initiated this fiscal year will total \$880,000 for a two-year period and will have the overall goal of enhancing the Environmental Assessment capabilities of AID and the developing countries which we assist. The program will include:

- analysis of AID recipient country institutional capability for environmental protection and natural resource management.
- evaluation of typical AID activities and the development of information and program design criteria to ensure environmental soundness.
- investigation of cooperative environmental approaches with other international development agencies.
- design and implementation of a multi-faceted prototype training program for developing countries' participants.

This cooperative and integrated approach will increase effectiveness of the U.S. Development Assistance Program and broaden the scope of the US MAB efforts.

Beginning in 1973, AID has sponsored three intensive courses in the environmental aspects of industrial development for policymakers, planners and educators in the less developed countries. Emphasis has been placed on the methods and techniques of assessing environmental impacts and means of considering alternative approaches to pollution control of various types of industry typical of that found in developing countries. Shortened versions of this program have been and continue to be taken abroad, permitting additional host country decision makers to be familiarized with the issues of the environment and industrial development. Two overseas seminars have been completed this month, one in Alexandria, Egypt and one in Accra, Ghana. Another is planned in the near future for Nairobi, Kenya. The end result of this activity will be a packaged course (outline and materials) which the U.S. plans to make available to UNEP and any other interested international or national organization.

AID also sponsored through a five-year grant a program to strengthen the ability of the University of Arizona to provide technical assistance in the planning and management of natural resources in arid or semi-arid regions of developing countries. The program and knowledge that have stemmed from the initial grant have been of great benefit to the arid regions of the world. The knowledge that has been gathered has been shared most recently at the UNEP Desertification Conference held in September of this year.

A spinoff of this grant will be the establishment of an Arid Lands Information System at the University of Arizona. AID has financially assisted other institutions of higher learning to strengthen their programs and overall capabilities to assist the developing countries. These have included, in addition to the University of North Carolina and University of Arizona, the following:

University of California (arid lands, water, pesticides);
Utah State (arid lands and water);
Colorado State University (rangeland and water);
University of Oklahoma (low cost water and wastewater treatment devices);
Clark University (environment and development issues).

Other special educational materials developed under AID sponsorship include:

1. A manual on industrial pollution control, prepared by Ralph Stone.
2. Three environmental guidelines manuals on problems associated with rapid urbanization, the building of large reservoirs and pollution of coastal zones from oil and other contaminants, prepared by the Smithsonian Institution.

--- Submitted by:

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October 1977

DIRECTORATE FOR UNESCO AFFAIRS

*Bureau of International Organization Affairs
Department of State
Washington, DC 20520*

The primary responsibility of this directorate is the development, articulation and implementation of the United States Government's policy toward the United Nations Educational, Scientific and Cultural Organization. It operates under the direct supervision of the Deputy Assistant Secretary for Human Rights and Social Affairs of the Bureau of International Organization Affairs. It works closely with the U. S. National Commission for UNESCO and the U.S. Permanent Delegation to UNESCO located at UNESCO headquarters in Paris.

The United States, as a charter member of UNESCO, has been an active participant over the years, continually trying to assist the Organization develop and implement programs in the areas of its competence that further international cooperation and understanding. This has certainly been the case with environmental education, a relatively new undertaking for the Organization and the whole UN system. The United States has contributed significantly to the development of this program through the service of its citizens on the Secretariat, the participation of experts on programs of conferences and, more recently, through the direct involvement of an official U. S. delegation at the Intergovernmental Conference on Environmental Education held at Tbilisi in the USSR which was sponsored by UNESCO and the UN Environmental Program.

The Department of State, in developing policies pertaining to the environmental education program of UNESCO, has worked closely with the Environmental Education Sub-Committee of the Federal Interagency Committee on Education to assure maximum involvement of all interested government agencies. This has proved an effective device for developing a coordinated government position and, through it, many interested organizations of the private sector.

In conclusion, it is becoming increasingly evident that environmental education, like all programs concerned with environmental issues, has an international, global dimension. Thus, it is clearly in the national interest of the United States to work through and with international organizations such as UNESCO and UNEP to develop cooperation in this field.

--- Submitted by:

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January 13, 1978

99106

U. S. NATIONAL COMMISSION FOR UNESCO

*Department of State
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The mandate of the U. S. National Commission for UNESCO is to provide liaison between the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the national non-governmental organizations active in these areas, and also to advise the U. S. government on its participation in UNESCO. The Commission is involved in a small way in national and international program activities in these areas when it determines it can play a catalytic role in stimulating activity in an area.

The U. S. has, both in UNESCO and through other institutions, taken the initiative in environmental education (EE), and the U. S. National Commission has been a part of this effort.

We have solicited the views of environmental educators in the U. S. in preparation of U. S. government positions taken at UNESCO to further its EE program and have assisted with staff and other resources in sponsoring the EE Institute at Chautauqua's Education Week in 1976, in the holding of the UNESCO North American Regional Seminar on EE, the publication of the Report of that Seminar, and U. S. participation in the UNESCO European Regional Seminar on EE. The U. S. National Commission was actively involved in preparation of positions taken at the UNESCO Intergovernmental Conference on EE held in Tbilisi in October 1977.

There are currently no Commission program monies budgeted for EE for the coming fiscal year, but the Commission will continue its interest in UNESCO's environmental education program.

--- Submitted by:

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November 10, 1977

FEDERAL AVIATION ADMINISTRATION

*Department of Transportation
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The mission of the Federal Aviation Administration (FAA) is to regulate civil aviation and provide for the safe and efficient utilization of the nation's airspace. Basic responsibilities include: operation and maintenance of the world's largest and most advanced air traffic control and air navigation system, certification of aircraft and airmen, certification of airports and administering of airport aid, making the airplane compatible with the environment, and civil aviation security.

The Federal Aviation Administration is committed to the development, evaluation, and execution of feasible programs designed to identify and minimize negative effects attributable to the air transportation system (noise, air, and water pollution, and land use activities). Program consists of four major task areas:

- a. Policies and Procedures for Considering Environmental Impacts,
- b. Noise Reduction and Control,
- c. Air Pollution and Control,
- d. Land Use Compatibility.

Levels of Involvement: FAA works with the general public, with officials at national, regional, state and local levels, and with private industry in programs designed to achieve policy established by EPA and CEQ. Internally, FAA develops guidelines, policy and operating criteria consistent with its general mission.

FAA is developing means to create awareness and cooperation of the general public of programs designed to improve the human environment.

For persons wishing further information on FAA's involvement, the publication "The Federal Aviation Administration's Five-Year Environmental Plan 1976-1980" may be obtained from the Federal Aviation Administration.

--- Submitted by:

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November 29, 1977

FEDERAL HIGHWAY ADMINISTRATION

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The Federal Highway Administration became a component of the Department of Transportation pursuant to the Department of Transportation Act (80 Stat. 932). It carries out the highway transportation programs of the Department of Transportation under pertinent legislation or provisions of law cited in Section 6(a) of the act.

The Federal Highway Administration encompasses highway transportation in its broadest scope, seeking to coordinate highways with other modes of transportation to achieve the most effective balance of transportation systems and facilities under cohesive Federal transportation policies as contemplated by the act.

The Federal Highway Administration is concerned with the total operation and environment of the highway systems, with particular emphasis on improvement of highway-oriented aspects of highway safety.

Among its activities, the Federal Highway Administration coordinates a wide-ranging research and development program directed toward the problems of traffic congestion; street and highway safety; effective design and reduced construction and maintenance costs, and social, economic, and environmental impact of highway transportation.

--Excerpted and modified from:

1977/78 United States Government
Manual, pp. 417-419.

ACTION

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The mission of ACTION is to mobilize people for voluntary action at home and abroad to change the conditions that deny fulfillment of human needs by calling on the best and most creative instincts of the human spirit.

At home, the enabling legislation for ACTION, the Domestic Volunteer Service Act of 1973, states that the purpose of all the component programs comprising the Act is to strengthen and supplement efforts to eliminate poverty and poverty-related human, social and environmental problems in the United States.

Abroad, the Peace Corps Act of 1961, as amended, states that its purpose is to help meet the needs for trained manpower, and to help promote a better understanding of the American people on the part of peoples served and a better understanding of other peoples on the part of the American people. However, it makes no reference to the environment as a programmatic focus.

ACTION has no specific program which concentrates on environmental education. The programmatic focus of a project sponsor supported by ACTION's funds is left to the discretion of the sponsor. ACTION's funds are devoted to the recruitment, training and placement of volunteers with project sponsors in the United States and host country agencies in developing nations, as well as to provide administrative support for sponsors.

At present, five of ACTION's programs have sponsors working in the area of the environment. These programs are Volunteers In Service to America (VISTA), Retired Senior Volunteer Program (RSVP), Peace Corps, University Year for ACTION (UYA) and the Youth Challenge Program (YCP). Each of these programs will be treated separately, below.

Volunteers in Service to America

VISTA Volunteers perform a variety of services and act as catalysts for local community involvement in a wide variety of program areas selected by local sponsors. Environmental activities include education in energy-saving methods and in legal action against major agents of pollution that affect the health of people living in poverty neighborhoods. In Fiscal Years (FY) 1977 and 1978, VISTA donated 91 volunteers each year (of its 3,965 and 4,825 volunteers, respectively) to energy conservation and environmental protection activities.

For FY 1979, VISTA will increase the total number of volunteers assigned to these activities to 250, with 20 volunteers assigned specifically to the area of environmental protection and pollution control.

Funding for potential project sponsors can be obtained through the ACTION State Program Director assigned to each state by submitting a project proposal for using volunteers. Given ACTION's intent to expand the number of volunteers devoted to energy and environmental activities in FY 1979 there exists a limited number of new volunteer slots for which new sponsors may apply.

Peace Corps

The educational technique employed by the Peace Corps in the area of environment, takes the form of working with host country nationals in developing nations in forest, park and watershed management, control of air and water pollution, wildlife conservation, soil conservation, and methane gas production. The number of volunteer years devoted to these activities in FY 1977 and 1978 is 236 and 261, respectively. In FY 1979, the number of volunteer years is projected to be 276. Similarly, the corresponding number of the Peace Corps Trainees was 177 and 137, respectively, for FY 1977 and 1978. The number of environmental Trainees projected for FY 1979 is 122.

Retired Senior Volunteer Program

The Retired Senior Volunteer Program (RSVP) provides volunteers on a part-time basis, usually four hours per week, and these volunteers are given a meal and transportation in exchange for their service. In mid-August of this year, 102 of the RSVP project sponsors (a 15 per cent sample) were polled to determine in which activities volunteers were engaged. From that poll it was projected that 52,117 volunteer hours were devoted to environmental protection/pollution control and 63,698 volunteer hours for forest support services out of a total of 40,353,660 volunteer hours devoted to all RSVP activities.

The teaching of energy conservation is only one of a number of areas comprising environmental protection/pollution control. For FY 1979, these activities will continue to consume less than 1 percent of RSVP's efforts.

As is the case with VISTA, potential project sponsors may contact the ACTION State Program Director assigned to each state.

University Year for ACTION

The University Year for ACTION (UYA) Program is designed to give college student volunteers the opportunity to provide service on a full-time, full-year basis for one year and to receive academic credit for these services. Currently there are approximately 115 UYA Volunteer working in the area of the environment. These volunteers are serving in the following areas: water contamination detection and avoidance, housing weatherization, development of a community park, construction projects, environmental quality, flood relief assistance, improvement of public facilities, collection of information for solid waste systems, development of a new water-testing procedure, environmental protection, and architectural and community planning.

While environmental education is not listed as a specific program focus for UYA, it is considered to be an integral part of the activities in the various areas.

Youth Challenge Program

The Youth Challenge Program (YCP) was started in FY 1976. It is designed to giving young people, ages 14-21, the opportunity to provide services, on a part-time basis, to poverty communities across the United States. At present, approximately 100 of the 4,000 YCP volunteers are performing the following environmental activities: school and community beautification, winterization, home maintenance, cleaning up communities, and construction projects.

Activities in the Private Sector, Supported by ACTION

The National Center for Voluntary Action in Washington, D.C., was, until recently, funded by ACTION. One of its principal activities is the development and dissemination of information to the voluntary community. As a result they have a portfolio (No. Fourteen) of materials on environmental education including a list of films, sources of literature and a variety of project models.

Future Plans

Because ACTION responds to requests submitted by potential project sponsors in the local community and the fact that the term "environment" is so far-reaching, future activities will depend largely upon the initiative of local sponsors and their perception of, and responsiveness to the energy crisis.

The only other area in environmental education which may receive some attention in ACTION will be the development of a "how-to"

manual in the area of the environment. As ACTION increases its efforts to evaluate programs, this type of information will be generated and compiled into manuals for use by sponsors and any other type of organization which could make use of them.

--Submitted by:

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December 13, 1977

APPALACHIAN REGIONAL COMMISSION

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The Appalachian Regional Commission is a Federal-State governmental agency concerned with the economic, physical, and social development of the 13-State Appalachian region, which includes parts of Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and all of West Virginia. The comprehensive goals of the Commission are to provide the people of Appalachia with the health and skills they need to compete for opportunities and to develop a self-sustaining economy and environment capable of supporting a population with rising incomes and standards of living and increasing employment opportunities. To accomplish this task, the Commission has concentrated on areas of development in which there remain great needs throughout the region: community development and housing, education, the environment, health and child development, industrial development and management, tourism, and transportation.

The Appalachian Regional Commission was created to develop plans and programs authorized under the Appalachian Regional Development Act of 1965 (79 Stat. 5; 40 U.S.C. App. 1).

The Commission consists of the Governors (or their representatives) of the 13 Appalachian States, and a permanent Federal Cochairman appointed by the President with the advice and consent of the Senate. The State members elect an Appalachian Governor to serve as State Cochairman. This position rotates every year.

The Appalachian Regional Commission has supported a number of environmental education activities throughout its region, generally falling in the categories of: Curriculum Development (primary and secondary), higher education teacher training, adult education, career building, joint programs with the private sector, and public information in environmental education.

--Excerpted and modified from:

1977/78 United States Government
Manual, pp. 465-467.

COMMUNITY SERVICES ADMINISTRATION

1200 Nineteenth Street, NW
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The Community Services Administration (CSA) does not have an environmental education section. Therefore, no funds have been made available in this category.

However, consumer education on utility rate structures and reform and on alternative energy technologies is an integral part of our energy program. Below is a list, organized by region and state, detailing to some extent CSA efforts in this area.

REGION I

A. VERMONT

The Vermont SEOO is organizing ways in which low income people will be involved in an effort to control energy prices and to influence consumer energy issues. The SEOO is also conducting public workshops on energy conservation and publishes fuel saving tips.

B. MASSACHUSETTS

The Massachusetts SEOO prepares and distributes consumer education materials, does legal research and intervenes in rate design cases and certain rate increases. The SEOO also performs a liaison function between advocacy and consumer education organizations and local CAAs. The SEOO also plans to produce educational material on alternative energy sources and conduct public workshops on building solar window-box collectors and on wind power.

The New England Farm Workers' Council, Inc. (located in Springfield, MA) provides energy conservation informational and educational materials to target communities as well as establishing and maintaining an energy resource library.

C. NEW HAMPSHIRE

The Belknap-Merrimack Counties CAP, Inc. is engaged in specific training of outreach workers in how to analyze a low income family's energy expenditures and how to communicate the results to the family so that they can cut down on their heating requirements and bills.

D. MAINE

The Maine Division of Community Services is sponsoring special workshops in the field of energy conservation and is expanding its existing energy libraries.

E. CONNECTICUT

The Connecticut SEOO provides a statewide voice for low income people in utility and fuel rate structuring and provides education and training in energy conservation techniques for CAA personnel which will be transmitted to low income families.

REGION II

A. NEW YORK

The New York SEOO has a program of comprehensive energy conservation and alternative energy technologies education which includes the use of video, film, the use of a traveling energy resource and education van and the development of a public school energy curriculum.

B. NEW JERSEY

The New Jersey SEOO will continue the Energy Conservation Seminars and will develop a Mobil Resource Center which will provide consumer energy education information services and will use film, video, literature and demonstrations of energy conservation devices.

C. PUERTO RICO

The Puerto Rico Department of Consumer Affairs will fund a non-governmental consumer organization which will provide energy education and legal assistance to the poor.

The Puerto Rico Community Action Agency provides energy conservation education, and conducts a seminar on solar water heating technology which will provide high school students with vocational training.

D. VIRGIN ISLANDS

The Virgin Islands SEOO and CAP will establish a central energy conservation library and will distribute pamphlets and films demonstrating commercial and home-made energy saving devices.

REGION III

A. DELAWARE

The Delaware SEOO will continue the development of educational programs to supplement local consumer education programs.

B. DISTRICT OF COLUMBIA

The United Planning Organizations will develop printed and audio-visual materials which will depict energy conservation measures, and will utilize public service time on television and radio to promote energy conservation. U.P.O. will also coordinate efforts with other public and private sector groups involved in energy conservation in the Metropolitan D.C. area.

C. VIRGINIA

The Virginia Winterization Program will continue to act as an advocate for the poor and elderly on energy matters. The Virginia SEOO will continue to develop films, slide-shows and other educational materials on conservation. These efforts are being coordinated with other state and private agencies and interest groups. The SEOO will also maintain its energy library and assist local communities in conducting consumer education workshops on energy matters as well as develop materials that can be used by other states in the region.

REGION IV

A. ALABAMA

The Alabama SEOO is involved in coordinating and giving statewide direction to the CAAs which have consumer information and advocacy programs, so that these programs can have a more effective impact in their areas. The SEOO also wants to insure that the interests of the poor are as adequately represented in public proceedings involving energy policies and utility rate structures as are the utility companies and other classes of utility users.

B. NORTH CAROLINA

North Carolina has a program to provide consumer education including information on alternative energy technologies and on other federal programs that might be utilized by the poor. North Carolina also provides advocacy for the poor in utility reform cases.

C. SOUTH CAROLINA

The local CAAs are involved in consumer education projects to inform the poor of energy conservation measures that they may take to conserve energy and reduce their energy requirements and costs.

D. GEORGIA

Seventeen of Georgia's local CAAs provide consumer education, information, and legal assistance services.

E. KENTUCKY

Eleven of Kentucky's local CAAs provide consumer information, education, and legal assistance programs.

F. MISSISSIPPI

Eleven of Mississippi's local CAAs provide consumer education, information, and legal assistance services to the poor.

G. TENNESSEE

All of Tennessee's local CAAs provide consumer education services.

REGION V

A. ILLINOIS

The Illinois SEEO has a training program for its CAAs on consumer education and information. This program includes training on conservation techniques, understanding rate structures and utility commissions, how to organize and advocate for rate structure change, and information on alternative energy technologies.

B. INDIANA

The Indiana CSA office has plans to support at least one grantee in establishing an Energy Consumers Awareness/Education Program that can be used by all of Indiana's CAAs for the education of consumers in the state.

C. MICHIGAN

Six of Michigan's local CAAs are currently providing consumer energy education services in the form of libraries, seminars and demonstrations of energy conservation techniques and devices as well as providing advocacy for the poor in utility reform cases.

D. MINNESOTA

In addition to the normal consumer education and assistance provided by Minnesota's local CAAs, the Minnesota SECO will lead an effort to analyze and advocate with regard to utility rate structures for low-income consumers.

E. WISCONSIN

The Milwaukee Social Development Commission is undertaking a project on utility rate reform.

REGION VI

A. ARKANSAS

The Arkansas Division of Human Relations disseminates energy conservation material and conducts energy conservation education programs. They are also seeking active representation of the poor on policy-making boards governing energy policies and utility rate structures. In addition, Arkansas has a joint research and demonstration project with Louisiana which deals with consumer education and energy conservation.

B. LOUISIANA

The Louisiana Consumer's League Inc. has an ongoing program in its second year of advocacy for consumers in rate cases, giving testimony before utility boards and providing consumer education.

REGION VII

A. IOWA

Four of Iowa's CAAs are providing consumer education services. The main thrust is to appraise the poor and elderly on how they can maximize the buying power of their fuel and utility dollar. This will be accomplished through personal contact, printed information and public workshops on energy conservation.

B. KANSAS

Two of Kansas' CAAs are providing consumer education, information, and legal assistance to the poor.

C. NEBRASKA

Nebraska CAAs have been in a close working relationship with the State Office of Petroleum Allocation for the dissemination of information and the sponsorship of public workshops. The CAAs also have their own media contacts and publish literature providing energy conservation information.

D. MISSOURI

Several of Missouri's CAAs provide consumers with energy conservation education and information as well as providing legal advocacy for the poor.

REGION VIII

A. COLORADO

One-third of Colorado's CAAs provide consumer energy conservation education services to the poor.

B. MONTANA

The Montana SECO provides consumer energy conservation education and information services to the poor.

C. NORTH DAKOTA

All but one of North Dakota's CAAs are organizing and conducting workshops on energy conservation, providing information and demonstrating appropriate energy technologies. In addition several county Energy Fairs are scheduled which will provide information and demonstrations.

D. SOUTH DAKOTA

All of South Dakota's CAAs have energy conservation education and legal assistance programs.

E. UTAH

Utah has public workshops on utilities and utility rate structures which provide information on energy conservation.

F. WYOMING

The Community Action of Laramie County, Inc. plans workshops which will provide education in alternative technology as well as materials so that those families which have had their houses weatherized can construct their own energy-saving devices and the education necessary to change their lifestyles in order to conserve energy.

REGION IX**A. ARIZONA**

Several of Arizona's CAAs and other agencies provide consumer education programs, including training workshops for consumers as well as providing legal advocacy for the poor. There is an effort underway in Arizona to establish a central information library open to the public.

B. CALIFORNIA

The California SEEO calls for its grantees to conduct energy conservation education in each house that is weatherized and to publicize energy conservation among low income communities. The SEEO will develop a method for the dissemination of updated material to low income households and to establish a central clearinghouse for information. The SEEO plans eight energy conservation education workshops and fairs which will include demonstrations of alternative technologies. Several of California's CAAs plan to establish consumer education advocate teams and media presentations as well as the development of energy libraries. The Fresno County EOC will develop a series of "How-To-Books" on consumer advocacy and alternative sources of energy.

C. HAWAII

The Hawaii SEEO calls for a program of low income household participation in consumer energy conservation classes. The Honolulu Community Action Program (HCAP) will develop a consumer outreach and education program to provide instruction in the benefits and limitations of solar heating as well as inform them of other ways to lower their electric bills. HCAP also plans to develop a program of community awareness of the problems and causes of the energy crisis. HCAP also provides advocacy for the lifeline concept in an effort to restructure electric utility rates in Hawaii.

D. NEVADA

The Economic Opportunity Board of Clark County provides all available consumer energy-saving publications to workmen for distribution to participants upon completion of weatherization of their homes. They will also establish a program of energy-use education utilizing their educational radio station by which low income persons will receive information to reduce energy consumption. The radio station (KCEP) will broadcast a minimum of three hours a week strictly on energy and weatherization topics. A special feature of the programming is a call-in program through which listeners can report problems in terms of energy as well as report instances of energy waste which they witness.

The Community Services Agency of Washoe County will conduct four energy conservation seminars in conjunction with Nevada's Public Service Commission. The seminars will focus on home energy conservation, alternative energy sources including demonstrations of solar greenhouses,

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utility bill analysis and information on heat loss and how to correct it. They are also setting up a central library system for easy reference and referral on all energy-related topics.

REGION X

A. ALASKA

The Alaska SEOO provides an advocacy voice within the state government for the poor in all policy matters, including energy policy. The SEOO also serves as the focal point for coordination and dissemination of energy information for citizens. The SEOO is establishing a consumer education program with the State Division of Energy and Power Development and other agencies. They will develop and present materials on consumer education and conservation techniques and act as a representative of the poor.

B. IDAHO

The Idaho SEOO has acted as an intervenor on behalf of the poor and elderly in each rate increase hearing brought before the Idaho Public Utility Commission and will continue to do so.

C. OREGON

Oregon has a Consumer Assistance Program which provides a statewide toll-free number for utility user information and complaints. The Program can intervene in cases of disconnected service and unreasonable deposit requirements. The Oregon Department of Energy provides a library on "do-it-yourself" energy conservation techniques.

D. WASHINGTON

Thirteen of Washington's local CAAs provide consumer education and alternative technology demonstration programs in the areas that they serve.

---Submitted by:

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December 13, 1977

ENVIRONMENTAL PROTECTION AGENCY

Office of Federal Activities (A-104)
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The U.S. Environmental Protection Agency (EPA) was created in 1970 as an independent regulatory agency with a mission to protect and enhance the environment. Created through an executive reorganization plan designed to consolidate certain federal government environmental activities into a single agency, EPA has responsibilities falling into four major categories:

- A. Establishing and enforcing standards
- B. Conducting research and demonstration projects
- C. Monitoring environmental pollution
- D. Assisting states and localities in establishing, maintaining and upgrading effective pollution abatement and control projects.

In pursuing these responsibilities, the most important task has been to arrest the spread of destructive influences on the environment and to upgrade inadequate treatment, sanitation, measurement, and control methods.

EPA defines environmental education as non-career-related learning in three basic areas:

- on ecology and the earth's ecosystems;
- on the relationship between humans and the earth (including sources and effects of pollution); and
- on the corrective steps needed to protect humans and ecosystems.

The term "non-career-related" stresses that environmental education concepts are intended to be part of everyone's basic education, without regard to career choice. Environmental education is aimed at the general consumer and at primary and secondary school students. The purpose of such learning is to increase awareness of the environment and to inspire a sense of individual responsibility for ensuring its preservation.

Most of EPA's environmental learning programs do not fall within this definition. Most are career-related, or "workforce-related", and are designed to ensure that the accomplishment of the Agency's legislated objectives in abatement and control of pollution are neither prevented nor constrained due to a lack of adequately trained manpower.

In this paper we differentiate between EPA's environmental education programs and its programs that are workforce-related.

The emphasis on workforce activities is consistent with the EPA strategy. Generally, the Agency's role is to stress planning, policy guidance, and assistance to states and localities in staffing their pollution control agencies, upgrading the skills of their environmental employees, and developing their training programs.

Ultimately the targets at the sub-professional level are personnel for the operation and maintenance of facilities such as water treatment works, sanitary landfills, disposal plants (incinerators), air monitoring equipment, and exhaust emission control devices. Also, there is a growing need for training in such areas as pesticides application, pest control management, etc. At the professional level the emphasis is on upgrade training of engineers, scientists, managers, and personnel involved in enforcement of environmental standards at state and local levels.

Teachers and students are primarily the recipients of EPA's environmental education resources, even though most of the resources are provided to the general public. Over 75 percent of the people viewing EPA films are doing so in educational settings, and approximately 80 percent of requests for publications come from either teachers or students. Only the President's Environmental Merit Awards Program is targeted at students in non-career-related learning environments.

Workforce-Related Programs

1. Direct Training. EPA's Office of Air Quality Planning and Standards provides technical training to personnel from state and local air pollution control agencies to ensure continued technical competence of state and local agency personnel. Technical training is also provided to selected personnel from the federal government and industry. Self-instructional air pollution courses have been developed for individuals to use at their own convenience. The Air Pollution Training Institute awards certificates to individuals successfully completing self-instructional courses.

The Office of Water Program Operations provides technical and managerial training courses in wastewater treatment technology, water quality planning and management, water quality analysis, and evaluation and monitoring. Recently the Office of Water and Hazardous Materials has begun offering courses in drinking water.

Most EPA direct training courses last about a week and Continuing Education Units are awarded for the satisfactory completion of courses. Besides providing classroom instruction, the training centers develop instructional packages, training aids, and course materials that can be used by state training operations. EPA's courses have a multiplier effect because many of the participants at EPA courses are instructors from state and local pollution control agencies.

Direct training activities have been hampered by a requirement that EPA charge tuition fees to all students attending the courses other than EPA employees. These fees have discouraged the attendance of state and local pollution control agency employees, who comprise the bulk of the classes. Recently, however, amendments to the Clean Air Act and the Safe Drinking Water Act have specified that tuition fees will not be charged to employees of air pollution and drinking water pollution control agencies. The Agency hopes to develop a uniform tuition fee policy.

2. Academic training (training grants and fellowships). EPA issues fellowships in air, water supply, and water pollution control. Most fellowships are awarded to present or prospective employees of regional, state and local environmental pollution control agencies. A very limited number of special fellowships are awarded to individuals for education in pollution control science and in specialty areas supportive of pollution abatement and control efforts. During the academic year 1976-77, EPA awarded 130 equivalent full-time fellowships.

Training grants are awarded by EPA to develop qualified personnel for careers related to the control of air, water, and solid waste pollution. Grants are awarded to assist in planning, implementing, and improving environmental training programs; increase the number of adequately trained pollution control personnel; and upgrade the level of training among state and local environmental control personnel. Individuals interested in participating as trainees in EPA-funded training grant programs contact the appropriate EPA grantee institutions.

In recent years EPA's academic training programs have been uncertain because of the feeling that free market forces would foster the necessary development of university programs and would attract sufficient numbers of students to enter environmental professions. Although funding has been uncertain, the programs have continued.

3. Grants for workforce planning programs of states, localities, and regions. EPA makes grants to states, localities, and regions to design and carry out programs complementing existing workforce development activities. In addition, the Agency awards broad program grants to assist states in developing and improving programs for reducing pollution. There is no statutory requirement that grantee agencies use this latter program to establish training programs, but EPA regulations require that approved programs contain provisions for training. Control program grants are administered through the EPA regional offices with headquarters guidance.
4. Interagency agreements. EPA's role as a catalyst in workforce development is illustrated in its interagency agreements. These agreements utilize a blend of funds and resources from other agencies for the achievement of common goals.

Presently the Agency is managing three interagency agreements that have a significant impact on the nation's workforce. These include: 1) agreements with the U.S. Department of Agriculture regarding pesticide applicator training and certification; 2) agreements with the U.S. Department of Labor promoting cooperation between training agencies and pollution control agencies at the state and local agencies; and 3) agreements with the U.S. Department of Health, Education and Welfare regarding training in both pesticides application and automobile emissions.

5. Special programs. EPA's Instructional Resources Information System (IRIS) was developed because of a need for comprehensive information on training resources. EPA offices have received numerous requests for this information from educational and training institutions. IRIS is an information base of materials relating to training of personnel in the fields of wastewater, drinking water, and pesticides. It permits administrators to determine what training aids are available. In addition, it permits instructional materials developers to determine what materials are available so they can make decisions about the need for development of new materials.

EPA often conducts special workshops on emerging areas of pollution control. These workshops are announced through EPA regional offices and through special brochures that are mailed to the intended audience. Attendance is restricted in some cases, depending on the nature of the workshop.

The Agency also makes workforce forecasts on the relationship between the available supply of trained workforce personnel and the contrasting demand for specific kinds of skills in pollution control. These forecasts are integrated into the total Agency planning system.

Environmental Education

1. Visitor Center. EPA's Visitor Center in Washington, D.C., gives classes almost daily, ranging from elementary through college age. Presentations cover what EPA is doing to protect the environment, as well as what individuals and groups can do. Pamphlets and exhibits describe the causes and growth of pollution, the problems confronting humans, and the technology for pollution control. The Visitor Center's staff conducts many of the classes, but also can draw on the expertise throughout the Agency for specialized presentations. In addition, visitor centers at EPA's regional offices and research installations around the country give classes and distribute educational materials.
2. Speaker's Bureau. EPA's Speaker Bureau in Washington, D.C., receives requests for speakers and maintains a file of biographical information on employees who can make presentations. When

the Speaker's Bureau receives a request for a speaker, it finds an employee qualified to make the presentation and sends a biography to the school or other organization. Speakers have access to EPA films, pamphlets, decals, etc.

3. Environmental films—EPA films are available through Modern Talking Picture Service. Although films are not produced strictly for classroom use, they are helpful in documenting the case for environmental cleanup.
4. Pamphlets, decals, etc. EPA's Public Information Center handles requests for information on the environment and pollution control, as well as on EPA activities. Available resources include career information, a glossary of environmental terms, discussions of environmental control laws, suggested classroom activities, coloring book presentations of environmental problems, etc.

EPA's Office of Federal Activities has developed a list of Federal Education Programs with Potential for Providing Technical or Financial Assistance to Environmental Learning Activities. The office has prepared a similar list of federal student assistance programs.

5. President's Environmental Merit Awards Program (PEMAP). PEMAP provides recognition to primary and secondary school groups carrying out projects in educational achievement, environmental awareness, and community services. Under the program a local adult supervisory group establishes the standards for the award and determines which projects qualify. Students who learn about PEMAP and are interested in the program can write to EPA for information. PEMAP is EPA's only education program receiving budget allocations for formal, non-career-related learning.

EPA's statutory authority to undertake education and workforce development programs varies from program to program. For example, the Federal Water Pollution Control Act authorizes a variety of training programs, including grants and fellowships for professional level training; grants to public agencies to establish pilot programs to train personnel in the operation and maintenance of wastewater treatment plants; workforce forecasting and planning; grants for the construction of training facilities for wastewater treatment operations and maintenance; and related workforce development activities in cooperation with other organizations. The Clean Air Act, as amended, mandates a comprehensive approach to the development of air pollution control workforce resources but does not specify the kinds of personnel to be trained to the extent specified in the Water Pollution Control Act. Solid waste legislation and drinking water legislation are also comprehensive enough to maintain an emphasis on workforce development. Statutory authority in noise, radiation, and pesticides, however, is more limited. The specific statutes are as follows.

<u>Program Area</u>	<u>Public Law, Name, and Applicable Sections</u>	
Drinking Water	PL 93-523	Safe Drinking Water Act, Section 1442
Solid Waste	PL 89-272	Solid Waste Disposal Act, Sections 204 and 210
	PL 91-512	Resource Recovery Act, Section 204
	PL 93-14	Amendment to Solid Waste Disposal Act
Noise	PL 92-574	Noise Control Act, Section 14
Wastewater	PL 92-500	Water Pollution Control Act,
	PL 95-217	as amended Sections 7, 10 and 31
Air	PL 90-148	Clean Air Act and Amendments, Section 103
Pesticides	PL 92-516	Federal Insecticide, Fungi- cide, and Rodenticide Act, Section 23
Miscellaneous	PL 93-203	Comprehensive Employment and Training Act

Most laws administered by EPA permit environmental education activities but do not specifically mandate them.

EPA's environmental learning programs are decentralized. The Agency is organizationally divided into program offices headquartered in Washington, D.C., and it has ten regional offices to implement programs. Training centers are located in Cincinnati, Ohio; Research Triangle Park, North Carolina and Athens, Georgia. Scattered informal learning activities are carried out at EPA's environmental research centers. Interagency agreements impact state and local agencies.

Write to the following addresses for information about EPA environmental learning programs.

1. Direct Training Programs-Information and Applications

Air

Registrar
Air Pollution Training
Institute (MD-20)
Environmental Research Center
Research Triangle Park,
North Carolina 27711

Wastewater and Drinking Water

Registrar
National Training and Operational
Technology Center
U.S. Environmental Protection
Agency
Cincinnati, Ohio 45268

R. L. Towner, Training Section
 U.S. Environmental Protection
 Agency, Region IV
 Environmental Research Laboratory
 College Station Road
 Athens, Georgia 30605

2. Fellowships-Information

Air

Mrs. Mary W. Wagner
 U.S. Environmental Protection
 Agency
 Manpower & Technical Information
 Branch (MD-17)
 Research Triangle Park,
 North Carolina 27711

Wastewater

Manpower Planning and Training
 Branch
 Office of Water Program Operations
 U.S. Environmental Protection
 Agency
 Washington, D.C. 20460

3. Training Grants; Technical Assistance; State and Local Workforce Program Development Grants-Information

Air

Control Programs Development
 Division
 Office of Air Quality Planning
 and Standards
 Office of Air and Waste Management
 U.S. Environmental Protection
 Agency
 Research Triangle Park,
 North Carolina 27711

Wastewater

Manpower Planning and Training Branch
 Municipal Operations and Training
 Division
 Office of Water Program Operations
 U.S. Environmental Protection Agency
 Washington, D.C. 20460

Solid Waste

Management and Information Staff
 Office of Solid Waste Management
 Programs
 U.S. Environmental Protection Agency
 Washington, D.C. 20460

Drinking Water

Office of Water Supply
 Office of Water and Hazardous
 Materials
 U.S. Environmental Protection Agency
 Washington, D.C. 20460

4. Training Grants and Fellowships-Applications

Grants Operations Branch
 Grants Administration Division (PM-216)
 U.S. Environmental Protection Agency
 Washington, D.C. 20460

5. Instructional Resources Information System (IRIS)

IRIS

National Training and Operational Technology Center
 U.S. Environmental Protection Agency
 Cincinnati, Ohio 45268

6. Public Awareness Activities-Visitor Center, Speaker's Bureau,
Films, President's Environmental Merit Awards Program (PEMAP)

Office of Public Awareness (A-107)
U.S. Environmental Protection Agency
Washington, D.C. 20460

For pamphlets, brochures, decals, write:

Printing Management Office (PM-215)
U.S. Environmental Protection Agency
Washington, D.C. 20460

7. Interagency Agreements; Coordination of Agency
Environmental Learning Activities

Environmental Workforce Coordinating Team
Office of Federal Activities (A-104)
U.S. Environmental Protection Agency
Washington, D.C. 20460

(The Office of Federal Activities also compiles a list of Federal Education Programs with Potential for Providing Technical or Financial Assistance to Environmental Learning Activities. That office has now completed a similar list of federal student assistance programs.)

---Submitted by:

Jeff Meetre
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December 30, 1977

INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN

814 East West Towers
4350 East West Highway
Bethesda, MD 20014

In the United States, water resources management functions are performed by each state for the rivers totally or partially within their geographic borders. The Potomac River flows through parts of four states, Maryland, West Virginia, Virginia and Pennsylvania, as well as the District of Columbia. Thus, five separate and independent political entities have responsibility for portions of the Potomac River, and the land that drains into it. In 1940, in an effort to offset this fragmentation, Congress established the Interstate Commission on the Potomac River Basin to provide coordination among the member jurisdictions. The Commission has no enforcement powers. Its purpose is to promote the development of compatible and mutually beneficial water and related land management programs between the member jurisdictions. The small professional staff aids with water resources and environmental management programs under the Federal Water Pollution Control Act Amendments (P.L. 92-500) and other state and federal programs. It evaluates and reports on water quality trends in the rivers of the basin, assists with long-range planning and water quality monitoring, and conducts an active information and public education effort about the water and other environmental concerns in the basin.

The Potomac basin is divided into four major sub-areas. The sparsely populated western-most portion is underlain by rich coal deposits whose exploitation during the second World War have left a legacy of biologically dead streams. Acid runoff from abandoned deep and strip mines has created streams with such low pH that they can no longer support plant or fish life. The vast mid-portion of the Potomac basin, including the valley of the Shenandoah River, the Potomac's major tributary, hosts rich soils, normally abundant rainfall, and good water quality. Forestry, agriculture and picturesque small towns characterize this portion of the Potomac basin, whose productive farms reach right up to the third sub-area, the creeping fringes of Washington, D.C., and its suburbs.

The nation's capital is the only major urban center within the Potomac basin's more than 14,000 square miles of land surface. Three million out of the four million Potomac basin residents live in this 500 square mile area. Washington has relatively little in the way of industrial pollution; but this concentration of three million people places considerable stress upon the river at this point, the head of the Potomac estuary. Because this last 100-mile long link with Chesapeake Bay is under the influence of tides, sewage effluent, sediment and pollutants from storm water runoff which enter the estuary at Washington are not carried rapidly away as they would be in the 286-mile long freshwater portion of the river. They slosh gently back and forth, pushed by the

tides, in their slow journey to the Bay. Although pollution from metropolitan Washington affects the upper estuary, the lower Potomac still supports an active and economically important fish and shellfish industry in this, the fourth sub-area of the Potomac.

For many years residents in these four Potomac basin sub-sections remained largely unaffected by, and even unaware of, each other. However, in recent years there have been growing instances of competition for water supplies, conflicts between different types of water use, and concern over the effects of various land uses upon water quality. Upstream farmers feel pressure from increasing land values and rising costs of pollution and sediment and erosion control programs, and they seek to protect their rights to water supplies for future irrigation. In Washington and its suburbs local leaders struggle to provide a water supply system which will be reliable even during low flows in the Potomac, for the river is the direct source of water supply for more than two million people in the metropolitan area. Meanwhile, millions of dollars are being spent trying to improve the treatment and future management of the area's sewage—an activity watched anxiously by downstream fishermen, hopeful that the metropolitan area will bring its impacts on water quality under control.

As these interactions and interdependencies between the communities and jurisdictions which share the Potomac basin become more complex, two critical needs emerge. The first is for individual communities and jurisdictions to better understand the impacts of their resource use and waste disposal decisions on neighboring areas; the second is for Potomac basin residents to understand the effects of their collective and cumulative actions upon the river as a whole.

ICPRB's efforts to provide information and educational opportunities about the political, economic and legal decisions which determine the well being of the Potomac has several major dimensions:

- o to help the general citizenry and their local community leaders and elected officials better understand the resource use and waste disposal alternatives appropriate for them to use; and to comprehend the implications of selecting one alternative over another. This may include increasing the knowledge of different technical methods, land use practices or of how to modify citizen attitudes and behaviors.
- o to improve the ability of Potomac basin press and media representatives to communicate sound information.
- o to assist in bringing about better communication and cooperation between the many federal, state and local government agencies whose decisions affect resource use and environmental quality, either directly or indirectly.

The most general method through which these diverse educational and information needs are met is through the preparation and dissemination of publications, all of which are available at no cost. ICPRB publishes a non-technical monthly newsletter, the POTOMAC BASIN REPORTER, which has done much to increase the understanding of Potomac basin citizens about the range of characteristics and concerns in the basin. To assist those who wish to have more in-depth, but still non-technical, information about major concerns, ICPRB has begun a new quarterly, Potomac ISSUES. Each issue paper deals solely with one topic, giving general background and then focusing on specific Potomac basin conditions and experiences relating to the topic. Different perspectives on both problems and potential solutions are featured, in order to present the interested reader with some of the tradeoffs involved in attempting to reach decisions about what should be done.

Thus far, 208 Areawide Waste Treatment Programs, water shortages and methods for conservation, and land disposal of sewage have been dealt with. This series is designed to make it easier for citizens groups, community leaders and local elected officials who have no technical background to develop a better understanding of topics in which they are particularly interested. Over time, the series will also provide teachers with a portfolio of useful information on topics that textbooks may approach in a general or theoretical manner.

The fourth Issue paper will accent a different type of Potomac resource—its citizen activists. Descriptions will be given of citizens involvement in various problems in the basin. These will include:

1. efforts to pressure for the cleanup of acid mine drainage
2. efforts to preserve agricultural land, key historic areas and recreational access sites
3. efforts to protect important ecological sites and wildlife refuges
4. efforts to assure effective implementation of adopted water pollution control programs, especially in the metropolitan Washington area
5. efforts to protect the centuries-old lifestyle and livelihood of the estuary watermen from encroachment by pollution and inadequately planned residential and industrial development.

This issue will be a tribute to those who have spent much of their free time working on Potomac concerns, and without whose efforts the river would be in much sadder condition. In addition, this issue of Potomac ISSUES on citizen activists may help to inform others about ways and avenues through which to become involved in concerns of particular interest to them.

The Interstate Commission on the Potomac River Basin also publishes many fairly technical reports; however, every effort is being made to provide "translated overviews" suitable for a broader audience, in order to increase the usefulness of the publications. The same pattern, of attempting to reach and involve multiple audiences, also holds true for ICPRB-conducted conferences, seminars and workshops, as well. Even though complex subjects, such as the use of the Potomac estuary as a water supply, are dealt with at these meetings, a strong effort is made to have any presentations given in understandable terms, and to encourage the participation of elected officials; key staff members of local, state and relevant federal agencies; citizen activists; and appropriate industrial and commercial leaders. Open discussions at these meetings are becoming productive dialogues between groups with quite different perspectives. Ever so slowly we are beginning to build a better understanding of the relationships of individual resource use and waste disposal decisions—whether made by a local community, a major federal agency, or an industrial or land developer—to the well-being of the Potomac.

Because much of the federal and state and local legislation which has been adopted to address environmental management is single focused and the major responsibility of one agency, both duplication of effort and unaddressed gaps exist in the overall attempt at better environmental management. ICPRB uses carefully designed field trips as one means of making decision-makers, key agency personnel, and members of the media more knowledgeable about the resource needs and regulatory agency programs which exist, in order to promote best use of the presently available means to work upon such problems. Many of the concerns that we face could be considerably reduced just by better communication and cooperation between programs and program managers.

Some field trips are short, one-day ventures, such as the two which took media representatives, elected officials, key staff people, and citizen activists involved in metropolitan Washington's 208 planning on one-day trips down the 100-mile long Potomac estuary. The groups traveled on a research ship, with aquatic scientists and fisheries management experts onboard as resource persons. The purpose of the trips was to help participants understand the downstream impacts of current water pollution on lower Potomac water quality and fisheries resources. This background was felt to be crucial to understanding and evaluating the implications of the different water quality management strategies being generated by the 208 planning process, and between which choices will have to be made.

The most ambitious field trips arranged by ICPRB have been the two POTOMAC RIVER TRIPS. In 1975 the Commission assisted the staff of former Congressman Gilbert Gude of Maryland in arranging a month-long trip down the full length of the Potomac. The group consisted of Mr. Gude, an ICPRB Commissioner, adult representatives of several water-recreation and conservation organizations, and five high school students selected by ICPRB to represent the four basin states and the District of Columbia. As they traveled by foot, coal car, canoe,

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horseback, bike, cabin cruiser, research ship and oyster boat, they saw and experienced the Potomac as it grew from a tiny spring in the mountains on the Maryland-West Virginia border, to a great 12-mile wide estuary, flowing into Chesapeake Bay. The profound learning experience which POTOMAC TRIP I provided made ICPRB realize how valuable a similar experience would be for those individuals who are responsible for the implementation of major federal and state resource use and pollution control programs. Consequently, in 1976 ICPRB conducted POTOMAC RIVER TRIP II, an intensive seven and one-half day trip down the 386 miles of the Potomac, for 40 federal and state agency officials. Moving by bus in the freshwater portion of the basin, and research ship in the estuary, the group visited examples of every major resource use activity in the Potomac—deep and strip coal mines, farm and forestry operations, major industry, a power plant, and oil storage depot, fin and shellfish areas, and water supply and waste treatment facilities. The group saw and heard about recreational user conflicts in the freshwater portion; they heard from farmers trying to remain in agriculture about the pressures of rising land costs, taxes and operation; they met with metropolitan area officials responsible for water supply and water pollution control programs; and with watermen and other estuary residents.

Representatives of the Environmental Protection Agency, Corps of Engineers, National Trust for Historic Preservation, Department of Interior, National Park Service, Bureau of Outdoor Recreation, Office of Water Research and Technology, the Soil Conservation Service, and others from key state agencies took part in PRT II. While each observer participated primarily to observe how well the programs of his or her particular agency were working, the most productive element of the trip was the increase in understanding that each participant came to have regarding the programs and efforts of the other agencies. PRT II helped to build the possibility for more integrated and effective management of existing federal and state resource use and waste disposal programs.

As can be seen, much of ICPRB's educational and information efforts are directed at those who are already in positions of responsibility, and who have at least some awareness of the Potomac. In the summer of 1977, ICPRB began a gentle but regular effort to reach out to the vast numbers of Potomac basin citizens and decision-makers who take water completely for granted. A weekly summary of river conditions between Harpers Ferry, West Virginia and the Chesapeake Bay (roughly half of the river) called POTOMAC RIVER WATCH, was instituted to remind people that the river is there, that it supports many types of activity including serving as the direct water supply for two million people and as the conduit which carries away sewage effluent and storm water runoff. Between May and the end of October, 1977, seventeen River Watchers called in each Wednesday with reports on conditions in their portion of the river. They noted such things as water level, whether the water was clear or muddy, whether algae or debris was present, any dangerous conditions (such as low or high

water, toxic spills, etc.); what kinds of fish were being caught, etc. Each Wednesday evening a 3-4 minute verbal summary was written. Thursday morning phone calls went out from ICPRB to 13 radio stations and 9 newspapers which carried part or all of the report.

The River Watchers were people who live and work along the Potomac. They often had historic notes or amusing anecdotes to contribute. They also told when a river-oriented special event was taking place, such as white water competition upstream and the historic blessing of the oyster boat fleet on the estuary. As it turned out, the RIVER WATCH also "tracked" the severe drought which hit major portions of the Potomac basin between June and October. The weekly messages regarding "No rain," and "falling river levels" made city dwellers conscious of the plight of upstream farmers, and even motivated citizens in more rain-rich areas to ask how they could help residents in another area where the water supply reservoir fell to historic lows.

Long ago, when people used the river more directly for food or transportation, they were more conscious of it as a total system, and aware of their dependence upon it. In a small way, the POTOMAC RIVER WATCH helped to re-establish that sense of the Potomac as a vital, aesthetically pleasing and multiple purpose lifeline between the basin's people.

While many efforts have been initiated by ICPRB and other concerned governmental and citizen organizations to raise the level of knowledge of the general citizenry and of officials specifically responsible for the Potomac, management of the river's resources remains badly fragmented—with both the river and its people the losers. Past attempts to superimpose one powerful authority over all activities in the whole basin have been vigorously, and in the author's judgment justifiably, resisted. However, it is important and desirable that coordination and communication between jurisdictions and major agencies be improved considerably over present conditions.

In an effort to define how institutional mechanisms might be improved, ICPRB is planning an ambitious effort: the Thames/Potomac Seminars. Following up on a study of drought management in the United Kingdom prepared by the author in 1977, the two seminars will bring together experts and practitioners from the two river basins to compare social, political, and technological problems and management mechanisms. The Washington Seminar will look at the fragmented Potomac through the way the extremely integrated British management system has been applied in the Thames River Basin. The goal will be to identify those mechanisms for communication and coordination which would be useful and acceptable in the Potomac. At the London-based seminar, the focus will be on those programmatic elements which the British wish to strengthen—long-range planning, public participation, use of advanced waste treatment technology, and the assessment of social and environmental impacts. ICPRB believes that this exchange can provide helpful guidance on ways to improve the management of the resources of the Potomac basin.

The need to increase the understanding of the relationships between the Potomac basin and the actions and needs of its people will never end. ICPRB attempts to use its vantage point of a basin-wide perspective and its broad access to information to strengthen the ability of the basin's decision-makers to deal with the difficult responsibilities they hold. Economic growth and population increases are anticipated for much of the basin. Each form that these take—resource exploitation, industrial development, new towns, second homes, or urban expansion—has potential negative impacts, which properly anticipated can be controlled. The goal of the Commission's educational program is to provide decision-makers with the knowledge and the contacts with experts through which poor resource use decisions and management can be kept to a minimum.

Although the ICPRB staff is small, its mandate is broad. It is not bound by the rigid constraints that sometimes reduce the effectiveness of much larger organizations. If concerns are raised by any or all of the Commissioners, the staff has the latitude to respond. This factor enables good use to be made of the multidisciplinary professional staff, and leads to an integrated approach to problems that can sometimes provide blueprints for ways that single purpose agencies can work together.

At the present time on the ICPRB Staff of 15, one full-time position works solely on education, and two, an editor and an editorial assistant, work full time on the preparation and dispersal of both technical and general educational materials. The budgetary commitment, including these three positions, and costs of publication represents approximately 21 percent of the Commission's total annual budget of \$421,702.

---Submitted by:

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November 29, 1977

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

400 Maryland Avenue, SW
Washington, DC 20546

The Space Act of 1958, the National Aeronautics and Space Administration's enabling Act, has a number of thrilling affirmations. It calls on the agency to undertake activities in space for "peaceful purposes for the benefit of all mankind," to contribute to "the expansion of human knowledge of phenomena in atmosphere and space," and to apply space science and technology "to the conduct of peaceful activities within and outside the atmosphere." The agency was further enjoined to "provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof."

As the words of the Act imply, NASA is a scientific research and a technological research and development organization. Its scientists conduct their research in astronomy, the life sciences, and the several Earth sciences including weather, mineralogy, oceanography, agriculture, forestry, geology, and hydrology. Its engineers develop the instrumentation to make the research possible.

Since NASA's manned space flights of Gemini in the mid-1960's and Apollo in the mid-1960's and early 1970's and the unmanned meteorological satellites developed by NASA in the early 1960's, it became evident that society had the capability for obtaining systematic observation from space of Earth's resources, a capability that would provide mankind with information needed to help solve its environmental problems.

In the early 1970's the flight of NASA's manned Skylab and its Earth Resources Technology Satellites, now called Landsats, returned to Earth revealing pictures and images of the terrain over which they flew; their quality surprised even the most optimistic of the experts. Earth observations from space presented society with a most promising tool for solving environmental problems, whether the problems be those of pollution, mineral resources, earthquake faults, agricultural acreage, fishing grounds, oil resources, or land-use planning.

During the past several years NASA's Educational Programs Division has been providing publications, films, and well-trained experienced master teachers to assist the schools in relating their courses and units in Earth science and environmental education to the new tools and new findings of NASA's Earth observation programs. Its publications are largely for teacher use, and its films are for classroom teaching, although they have general audience appeal.

Consultant and Speaker Services

NASA's Educational Programs Division each year provides resource personnel, consultants and speakers for several hundred schools, conferences, community groups, courses, workshops, and curriculum committees.

These consultants and speakers are master-teacher types, with elementary, secondary, and/or collegiate teaching experience.

For these services, education authorities should submit their requests well in advance (usually two or three months) to the Educational Programs Office serving their states.

Publications and Films

Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402:

MISSION TO EARTH: LANDSAT VIEWS THE WORLD

1976, 459 pgs. \$14.00

Stock Number 033-000-00659-4

ERTS-1 A NEW WINDOW ON OUR PLANET

1976, 362 pgs. \$13.00

Stock Number 024-001-02757-7

THIS ISLAND EARTH

1970, 182 pgs. \$9.50

Stock Number 033-000-0021-9

EXPLORING SPACE WITH A CAMERA

1968, 214 pgs. \$9.15

Stock Number 033-000-0027-6

LUNAR ORBITER PHOTOGRAPHIC ATLAS OF THE MOON

1970, 724 pgs. \$23.90

Stock Number 033-000-00314-5

WHY SURVEY FROM SPACE?

1975, 9 pgs. \$.45

Stock Number 033-000-00619-5

THE SPECTRUM (Wall Chart)

1975, \$.60

Stock Number 0-576-840

LANDSAT (Wall Chart)

1977

Stock Number 033-000-00702-7

Available through NASA's Educational Programs Office:

Environmental Film Series: Landsat, a Satellite for All

Seasons, a series of six films with teacher guides

describing use of NASA Landsat satellites for repeated

rapid surveys of Earth's environment and resources.

Each film 14-1/2 min., color, sound

The Wet Look, re: water resources

Pollution Solution, re: problems of environmental quality

The Fractured Look, re: mineral resources and geological hazards

Growing Concerns, re: agricultural and forest resources

Land for People and Land for Bears, re: land-use planning

Remote Possibilities, re: use and significance of Landsat

Off-prints of periodical articles; if these are no longer in stock, the requester can write the periodicals' publishers or examine the articles in his library:

Nixon, W. D. and Richard E. McCormack, "Landsat, a Tool for Your Classroom," Social Education, v41, n7, November-December 1977.

Spencer, Robert L. "Lageos--A Geodynamics Tool in the Making," Journal of Geological Education, v25, n2, 1977, pp.38-42.

Sources of Assistance

Educators seeking further information about these NASA environmental education resources should contact the NASA Educational Programs Officer at the NASA Center which serves their state:

If you live in

Alaska
Arizona
California
Hawaii
Idaho
Montana
Nevada
Oregon
Utah
Washington
Wyoming

Write to Educational Office at

NASA Ames Research Center
Moffett Field, California 94035

Colorado
Kansas
Nebraska
New Mexico
North Dakota
Oklahoma
South Dakota
Texas

NASA Lyndon B. Johnson Space Center
Houston, Texas 77058

If you live in

Connecticut
 Delaware
 District of Columbia
 Maine
 Maryland
 Massachusetts
 New Hampshire
 New Jersey
 New York
 Pennsylvania
 Rhode Island
 Vermont

Florida
 Georgia
 Puerto Rico
 Virgin Islands

Kentucky
 North Carolina
 South Carolina
 Virginia
 West Virginia

Illinois
 Indiana
 Michigan
 Minnesota
 Ohio
 Wisconsin

Alabama
 Arkansas
 Iowa
 Louisiana
 Mississippi
 Missouri
 Tennessee

Write to Educational Office at

NASA Goddard Space Flight Center
 Greenbelt, Maryland 20771

NASA John F. Kennedy Space Center
 Kennedy Space Center, Florida 32899

NASA Langley Research Center
 Langley Station
 Hampton, Virginia 23665

NASA Lewis Research Center
 21000 Brookpark Road
 Cleveland, Ohio 44135

NASA George C. Marshall Space Flight
 Center
 Marshall Space Flight Center,
 Alabama 35812

--Submitted by:

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 Director of Educational Services
 Office of Public Affairs
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November 28, 1977

NATIONAL ENDOWMENT FOR THE HUMANITIES

806 Fifteenth Street, NW
Washington, DC 20506

Overview -- Agency Mission and Programs

The National Endowment for the Humanities, chartered by Congress in 1965 (together with the Endowment for the Arts) makes grants to support scholarly research, education, and activities for the general public which will add broad participation in the humanities.

The humanities include, but are not limited to, the following fields: history; philosophy; languages, literature; linguistics; archaeology; jurisprudence; history and criticism of the arts; ethics; comparative religion; and those aspects of the social sciences employing historical or philosophical approaches.

The Endowment's programs -- which aid individuals and institutions as well as local, state and national organizations -- are organized into six broad areas:

Research Grants Programs support projects by teams of scholars researching the humanities and developing reference works on both American and foreign nations' history and culture. For example, an NEH grant to the American Association for State and Local History, Nashville, is making possible the history series, "The States and the Nation," separate volumes on each state and the District of Columbia, now nearly complete.

Fellowship Programs provides money to individual scholars, teachers, and professionals who are studying areas of the humanities. For example, a study of religious and moral indoctrination of the young in Germany during the Lutheran reformation is being undertaken by a University of Indiana Professor.

Education Programs supports, upgrades and strengthens humanities programs in schools and colleges at all levels. The University of Arizona, for example, received an NEH grant to expand its program in Native American languages and linguistics and enable the University to become a center for study and teaching of the indigenous languages of the Southwest.

State Programs, operating through volunteer citizens committees in each state, regrant funds to non-profit groups and organizations in support of humanities projects of interest and usefulness to the citizens of each state.

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Public Programs extends the study of the humanities to the widest general audience through the media, public lectures and forums, libraries, museums and historical organizations. "The Best of Families," a major public television historical drama series, series, and the "Treasures of Tutankhamun," and international archaeological exhibition, both supported by NEG funds, have drawn the attention of millions of Americans.

Special Programs aid a variety of activities including Youth-grant projects designed and conducted by persons in their teens and twenties, experimental programming (like Courses by Newspaper) to test new ways of involving Americans in the humanities, and Challenge Grant incentives to stimulate private support of local humanities institutions.

N.E.H. Interest in the Field of Science, Technology and Human Values

An area of continuing Endowment interest concerns the relationships among science, technology, and human values. In response to growing national concern about the value implications of developments in science and technology, the National Endowment for the Humanities and the National Science Foundation jointly announced in 1973 a special interest in fostering research, education, and public-oriented activities on this subject. Proposals for projects in which the disciplines of the humanities will be predominantly employed may be submitted to the Endowment through one of its established divisional programs. For projects requiring major involvement of scientists, preliminary inquiry may also be made to the National Science Foundation, concerning the appropriateness of concurrent submission and review, with a view to possible joint funding by the two agencies. Endowment efforts in this area are coordinated through the Program of Science, Technology, and Human Values.

N.E.H. Supported Projects Specifically Relating to Environment

As with proposals for support of projects on other subjects, those designed to provide perspectives on environmental issues are evaluated in terms of humanistic quality; there is no designated floor or ceiling on the proportion of funding which may go to particular subject matter areas. Some examples of NEH grants dealing principally or partially with environmental questions are as follows.

Dr. Forest L. Grieves, Associate Professor of Political Science, University of Montana. (Summer Stipend Fellowship.) 1973. International law and the environment.

Dr. Donald E. Worster, Assistant Professor of American Studies, Brandeis University, Waltham, Massachusetts. (Fellowships in Selected Fields.) 1974-75. Industrialism and Anglo-American ecological thought.

Dr. William G. Snead, Assistant Professor of Economics, Hamilton College, Clinton, N.Y. (Fellowships in Selected Fields.) 1974-75. Human values and science and technology in the economic development of China, including examination of Chinese experience in environmental protection.

Dr. Jurg K. Siegenthaler, Associate Professor of Sociology, The American University, Washington, D.C. (Summer Stipend Fellowship.) 1977. Industry, society and the environment: Pennsylvania, 1850-1950.

Lehigh University, Bethlehem, Pennsylvania, Dr. Douglas Feaver, Professor of Classics. (Education Programs grant.) 1972-77. Course, and program development: Humanities perspectives on technology.

Carleton College, Northfield, Minnesota. Dr. Ian Barbour. (Education Programs grant.) 1974-75. Course development: Program in science and ethics, including environmental ethics.

Saint Louis University, Missouri, Dr. Frederick J. Dobney. (Education Programs grant.) 1975-80. Curriculum development: Program on man, technology and society.

New College of the University of South Florida, Tampa. Dr. Bryan G. Norton, Assistant Professor of Philosophy. (Education Programs grant.) 1976-77. Course development: Humanities and environmental issues.

Northland College, Ashland, Wisconsin. Dr. Gladys Jackson, Associate Professor of English. (Education Programs grant.) 1977-80. Curriculum development: Humanities program in an environmentally-oriented college.

Dickinson College, Carlisle, Pennsylvania. Dr. Frederick Ferre, Professor of Philosophy. (Education Programs grant.) 1977-78. Course development: Humanities in the sciences, including course entitled "Environment, Culture and Values."

Field Museum of Natural History, Chicago, Illinois. Dr. Robert F. Inger. (Public Programs grant.) 1971-76. Exhibit: Man in his environment.

Carnegie Museum of Natural History, Carnegie Institute, Pittsburgh, Pennsylvania. Mr. Alfred D. Bjelland, Supervisor of Education. (Public Programs grant.) 1977-78. Planning grant: Man and his environment exhibit.

Total Education in the Total Environment, Inc. Mr. William R. Eblen, Director. (Public Programs grant.) 1977-78. Planning grant: The Rene Dubos environmental forum.

— Submitted by;

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December 14, 1977

NATIONAL SCIENCE FOUNDATION

Washington, DC 20550

The National Science Foundation is an independent agency of the Federal Government charged with "promoting the progress of science..." in the United States. Its two principal functions involve grants to initiate and support scientific research, and programs for science education at all levels—i.e., education not only for the preparation and maintenance of professional scientists, but also for non-scientists who need a working comprehension of science to function effectively in our technological society.

The Foundation's operational definition of science includes not only the natural sciences, but also the mathematical, engineering, and social sciences. While support tends to be overbalanced in favor of higher education, substantial amounts (especially from the Science Education Directorate) are also devoted to pre-college programs. The Foundation's mandate includes no specific responsibilities for environmental education, but EE is generally seen as fitting nicely into its eligible categories. As the following table shows, direct support for environmental education currently is running at about \$5.6 million per year.

Estimates of Support for Environmental Education, FY 1977,
from the Science Education Directorate, NSF

	<u>Pre- College</u>	<u>Higher Education</u>	<u>Total</u>
Faculty Education Activities (In-Service)	\$ 900,000	\$ 342,000	\$1,242,000
Student Educational Activities	575,000	1,414,000	1,989,000
Course & Curriculum Development:			
National Programs	650,000	229,000	879,000
Local Programs	-0-	1,279,000	1,279,000
Dissemination	<u>23,000</u>	<u>137,000</u>	<u>160,000</u>
Totals	\$2,148,000	\$3,471,000	\$5,619,000

Allocations and projections within the Science Education Directorate are based on function rather than discipline. As a result, disciplinary totals tend to rise and fall across time according to the number and quality of proposals submitted to the Foundation in the various subject matter areas. During recent years, expenditures for environmental education have risen slowly but steadily.

The preceding table records only expenditures from the Foundation's Directorate for Science Education aimed directly at education-centered activities. It is important to realize, therefore, that substantially greater sums are invested indirectly in environmental education by several of the Foundation's other units, especially the three Research Directorates, International Affairs, and Applied Science and Research Applications. The purposes of these programs are to support basic research, applied research, international cooperation in science and technology, etc., but their grants include substantial amounts for education in the form of graduate student support, procurement of research instruments, the maintenance of ships, field stations, and other specialized research facilities, and the like. All these have valuable spin-off effects on environmental education, especially at its more advanced levels. Major areas of impact currently include the atmospheric, earth and ocean sciences, polar programs, environmental biology, behavioral sciences, mathematical modeling of environmental systems, energy and resources technology, economic and sociological aspects of environmental protection/development, and other interactions between humans, their societies, and the environment. To give an idea of the relative magnitude of the education and the research programs, the Education Directorate annually supports some 1500 graduate students, the Research Directorates 9,000; education some 100 post-doctoral students; research 3,500.

Specific examples of environmental education projects recently supported by the National Science Foundation's Science Education Directorate include:

Faculty Education Activities--

Pre-College—35 local and regional workshops for over 2,000 elementary and secondary school teachers covering the various areas of environmental education and training.

Higher Education—Chautauqua-type short courses for college teachers. While the topics change annually, there usually are one or more environmentally-related programs offered. Information is distributed by the American Association for the Advancement of Science.

—Opportunities for individual teachers to participate actively in environmental research are afforded through NATO Postdoctoral Fellowships, Science Faculty Professional Development awards, and National Needs Postdoctoral Fellowships.

Student Educational Activities--

Pre-College—the approximately 150 Secondary School Students Science Training projects always include a number offering work in environmentally-related areas. These summer projects are conducted in colleges and other non-profit institutions for high school students of high ability in science. Lists of projects are distributed in late winter to every high school in the U.S.

Higher Education—some 150 Undergraduate Research Participation projects (many offering work on environmentally-related topics) place able science undergraduates in academic or industrial settings for a summer's research apprenticeship. Lists of available projects are available from the Foundation by mid-winter each year.

—about 65 Student-Originated Studies projects immerse undergraduate student teams in summer-long studies of locally important issues. Multi-disciplinary approaches to problems of the physical, biological, and/or social environments are stressed. Lists of available projects are available from the Foundation by late winter.

—Special programs experimenting with strategies for facilitating the entry of women, or of minority members, or of the physically handicapped into scientific careers, are also supported by NSF.

Course and Curriculum Development—National

Environmental education succeeds in winning nearly \$1 million each year for projects to develop curricula with promise for national impact. A partial list of current examples includes:

Pre-College--

- Courses on crustal evolution
- General course on outdoor science
- Resource center on E.E. for pre-college teachers

Higher Education--

- Advanced undergrad/grad course on land use
- Undergrad course on remote sensing of the environment
- Grad instruction in geography
- Undergrad materials in oceanography
- E.E. materials for two-year college students
- Undergrad materials in geochemistry
- Undergrad curriculum in pest management for plant protection
- Courses on the design of air pollution control equipment
- Energy, technology and society
- Teaching demography in higher education with computer-generated graphics

A more complete list of projects is contained in SE 77-80, Development Projects in Science Education, single copies of which are free on request.

Course and Curriculum Development--Local

Institutions of higher learning may receive support for local development of improved science instruction. Recent projects in environmental education include:

Training and research initiation in tropical studies
 University/industry collaboration in grad training in energy
 Videotape vignettes of engineering practice
 Optimization of an ocean thermal energy conversion system
 "Transportation" in an interactive technology-society course
 Computer modeling in wilderness management education
 Audio-tutorial and self-instructional systems for soil and
 plant science
 Designing operating computers for water and wastewater treat-
 ment plants
 A course sequence on environmental design and behavior
 Student interpretation of LANDSAT imagery
 Simulation of social system and ecosystem interaction
 Underground space utilization
 Organization of a resource recovery experimentation station
 Partial support for procuring undergraduate instructional
 scientific equipment
 A laboratory/field station for conservation and environmental
 technology education
 A wilderness field station for undergrad science education
 An outdoor interdisciplinary laboratory

Course and Curriculum Development—Dissemination

Environmental education information colloquium for elementary
 and secondary schools
 Systems for providing information on local environmental
 issues to media representatives
 Ethical problems facing environmental professionals
 Ethical problems of scientists preparing environmental impact
 statements
 National workshop on ethical issues—"Toxic Substances and
 Trade Secrecy"
 Seminar on energy, environment, and ethics
 Science briefing on "Conservation, Technology and Energy Policy"
 —A conference model for providing science information to
 reporters and policymakers.

--- Submitted by:

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December 30, 1977

SMALL BUSINESS ADMINISTRATION

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The fundamental purposes of the Small Business Administration (SBA) are to aid, counsel, assist, and protect the interests of small business; ensure that small business concerns receive a fair proportion of Government purchases, contracts, and subcontracts, as well as of the sales of Government property; make loans to small business concerns, State and local development companies, and the victims of floods or other catastrophes, or of certain types of economic injury; license, regulate, and make loans to small business investment companies; improve the management skills of small business owners, potential owners, and managers; conduct studies of the economic environment; and guarantee surety bonds for small contractors.

The Small Business Administration was created by the Small Business Act of 1953, and derives its present existence and authority from the Small Business Act as amended. Other pertinent legislation affecting the SBA includes the Small Business Investment Act of 1958, as amended, and the Disaster Relief Act of 1970. Other authorities have been delegated by the Secretary of Commerce.

Among listed functions and activities of the SBA are financial assistance to victims of floods, riots, civil disorders, and other catastrophes, investment assistance, procurement assistance, technology assistance, management assistance, minority small business, advocacy, and planning, research, and data management. The agency conducts studies which measure the general impact of air, water, and noise pollution abatement efforts on small business, as compared with its large business competitors. It studies the impact of evolving national energy programs and of other regulatory programs, such as those dealing with the occupational health and safety of the American work force.

--Excerpted and modified from:

1977/78 United States Government
Manual, pp. 624-630.

SMITHSONIAN INSTITUTION

*Chesapeake Bay Center for
Environmental Studies
Route 4, Box 622
Edgewater, MD 21037*

The Smithsonian was created by an Act of Congress in 1846 in accordance with the terms of the will of James Smithson of England, who in 1826 bequeathed his property to the United States of America "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men." Today the Smithsonian Institution has some two dozen research bureaus and museums spanning the fields of art, history and science. In the area of environmental studies, the focus of Smithsonian activity is at the Institution's Chesapeake Bay Center for Environmental Studies Bureau.

The Chesapeake Bay Center, established in 1965, is a 2,600-acre scientific and educational research facility located seven miles south of Annapolis, Maryland. Scientific research activities include studies on estuarine and upland ecology, watershed properties, and human ecology. Educational programs focus on basic research questions pertaining to the teaching of environmental education outdoors, curriculum development and information transfer. All are an attempt to improve the quality and effectiveness of environmental education, as well as conveying current environmental research findings to the public.

Research in outdoor environmental education is concerned with the dynamic interaction between the learner, the instructor, the subject matter and the setting (or environment). Learner-setting and subject matter-instruction interactions are of special interest. For example, current research includes a detailed analysis of the elementary school environmental education field trip. The role of novel settings and setting relevance to the subject matter on the cognitive, affective and psychomotor dimensions of learning are being assessed. The results of such studies are leading to improved methods for teaching environmental concepts to learners in outdoor settings.

In addition to research, curriculum development projects at the Chesapeake Bay Center are developing new ways for teaching environmental concepts to broad segments of the population, including school children, children in community-centered learning situations, adults, and family groups. Efforts are being made to utilize easily accessible home environments such as lawns, vegetable gardens and indoor plants as the focus for family environmental education

activities. Other projects have extended the use of estuarine environments as sites for environmental education, and explored new roles for teachers and nature center personnel in achieving a field-trip partnership.

Additional environmental education projects at the Chesapeake Bay Center have included a curriculum implementation project; summer environmental educator training program; a career education/environmental education pilot project; programs for the gifted and talented; an environmental studies internship program for undergraduates; a model program for suburban and inner city youth focusing on human and natural ecology; and a pilot project to develop a family-centered environmental education program in conjunction with the National Park Service and National Audubon Society.

The information transfer program of the Center is designed to facilitate the flow of information between scientists and environmental decision makers. Many of the Center's scientific findings can be used in land use and water resource management decisions. In order to transfer this information to the public, the Center has identified various groups involved in environmental decision-making. These groups include resource management agencies, public officials and citizen organizations. Information is disseminated to these groups through special publications, fact sheets, news releases, workshops and a monthly newsletter.

In developing an information transfer program, Chesapeake Bay Center staff surveyed citizen organizations, legislators and public officials in the Chesapeake Bay region to determine what types of information services were needed on environmental issues. This survey has helped to lay the foundation for the continuous interaction between the Center and these public groups. As a direct response of this survey, several current Chesapeake Bay Center activities were initiated. For example, after the survey, several active citizen organizations requested and received help in researching environmental management problems and in sponsoring workshops. Legislators' suggestions for more information were met by publishing a newsletter which keeps them and other citizens informed about Chesapeake Bay Center research and educational activities.

Research studies have centered on the public decision-making process on specific issues and the existing status of environmental education programs in the Chesapeake Bay region. Both studies resulted in not only an improved information base, but in more effective public decision making in the first case and in more and better Bay-oriented school environmental education programs in the other. The Chesapeake Bay Center is continuing to explore and improve environmental information flow, with an interest on national as well as local and regional problems. Current emphasis is on the national problem of non-point sources of water pollution.

Expenditures on environmental education at the Chesapeake Bay Center represents roughly 12 percent of its total budget. Environmental education activities account for less than 0.1 percent of total Smithsonian Institution annual expenditures. With the exception of limited internships sponsored by the Chesapeake Bay Center, no funds are available to outside groups or individuals for environmental education activities.

Elsewhere within the Smithsonian, several museums have sponsored exhibits relevant to environmental education. In particular, the National Museum of Natural History, the National Museum of History and Technology, the Renwick Gallery (National Collection of Fine Arts) and the National Portrait Gallery have highlighted environmental concerns in past or present exhibits. In addition to the Chesapeake Bay Center for Environmental Studies, several Smithsonian bureaus conduct environmental research, the results of which often have educational implications. The National Museum of Natural History, the Smithsonian Tropical Research Institute, the Radiation Biology Laboratory and the Fort Pierce Bureau are four examples.

In conclusion, the Smithsonian has consistently felt the need for improved environmental literacy and, primarily through its Chesapeake Bay Center Bureau, is actively participating in efforts to improve the quality of environmental education.

---Submitted by:

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November 29, 1977

TENNESSEE VALLEY AUTHORITY

Norris, TN 37828

The Tennessee Valley Authority (TVA) is a Federal agency charged with responsibility of managing and developing both human and natural resources in the Tennessee River Valley and adjacent areas. Within the ranks of Federal agencies, TVA is unique. Officially formed in 1933, TVA's original concept was fostered in the political and environmental realms of the Theodore Roosevelt administration at the turn of the century:

It was the logical outcome of a long ferment of American thinking about the Nation's resources and how to conserve and develop them.

Three hundred years of American settlement had been wasteful; resources were regarded as practically inexhaustible. President Theodore Roosevelt sparked the trend that led to the reversal of wastefulness. Gifford Pinchot, U.S. Forester, and W J "No Stop" McGee, anthropologist, geologist, and hydrologist, headed his conservation team. . .

Pinchot considered that his own specialty, forestry, was inseparably related to other natural resources—to streams and inland navigation, water power and flood control, soil and erosion, minerals, fish, and game. He came up with a capsule idea that was expressed practically in the TVA Act many years later. All these, he concluded, were not separate problems; they 'make up the one great central problem of the use of the earth for the good of man'.

On May 18, 1933, President Franklin D. Roosevelt signed the TVA Act, formalizing an agency to examine a multitude of resources as inter-related factors, to develop these resources with the thesis that the human and natural environments are inseparable, and to function on a regional basis. The focus of this effort was to be in parts of the seven states encompassed by the Tennessee River Valley.

With its birthright founded in a strong concern for the environment and the relation of man to and in that environment, with its multidisciplinary structure, and with its focus on a major region of the nation, the TVA identified the need for a broad-based educational program to promote and support these ideals. Environmental education thus evolved as a major program.

Levels of Involvement

Although designated to serve a specific region of the nation, the Tennessee Valley Authority has always been an agency with national recognition and potential for national demonstration. In environmental education, therefore, TVA functions on the national scale in development of a program at regional and local levels.

A major effort toward national demonstration and program development is carried out at TVA's Land Between The Lakes. Land Between The Lakes serves as the agency's laboratory and testing grounds for environmental education. Formal and nonformal programs are ongoing with unique support facilities such as the Youth Station, a year-round residential environmental education center, and the Vintage Farm, a cultural-historical restoration of an 1850's farm. In a national advisory and planning role, TVA participates in the Federal Interagency Committee on Education (FICE) and on the subcommittees on environmental education and energy education. The agency is active also in national environmental education professional organizations such as Conservation Education Association, National Association for Environmental Education, and the Alliance for Environmental Education.

On the regional level, TVA participates in the Southeastern Headquarters for Agency Resources in Environmental Education (SHARE). SHARE membership is composed of Federal agencies in the southeastern United States which have active programs in environmental education. In addition to SHARE, TVA maintains a close working relationship with the state consultants for environmental education in the respective states of the TVA region. TVA's regional efforts are focused primarily in the southeastern states.

Locally, TVA offers consultation for program development in environmental education to the formal school communities at levels ranging from preschool to graduate programs. Special assistance in school site development, curriculum development, and resource identification is frequently provided. Work with these topics not only involves TVA staff but also highlights the environmental education activities of other local, state, and Federal organizations. Similarly, teacher training through inservice programming is among the services available to the educational sector from TVA. General presentations on environmental education are also available. The restoration of the turn of the century powerhouse and area surrounding the Nolichucky Dam near Greeneville, Tennessee, is an example of a development which is designed for the general public as well as for public schools.

History of Involvement in Environmental Education

Since the creation of the agency in 1933, TVA has faced the challenge of educating the citizenry of the Tennessee Valley. Early themes were natural-resources related. Common topics included the

use of natural resources, the management of basic land and water units, and the conservation practices necessary to ensure continuation of the resource pool. The early techniques were general in nature and used such channels as agricultural extension agents, employee training programs, and libraries for the areas in which employees worked. Although all of these programs were directed toward environmental and conservation objectives, it was not until the early sixties that TVA initiated the programs that were eventually to grow into the current environmental education effort. The first major step was the initiation of a major TVA project, Land Between The Lakes.

The Tennessee Valley Authority's Land Between The Lakes project is potentially the most significant single development in the field of outdoor recreation and education that has happened in this century. . . .

The optimism expressed by Dr. Milton Gabrielsen of New York University in this statement is characteristic of the enthusiasm associated with the initiation of TVA's Land Between The Lakes. Dr. Gabrielsen continued:

The idea originated with TVA in 1959 while the U.S. Army Corps of Engineers was building Barkley Dam on the Cumberland River. For a distance of 40 miles, two great river valleys—the Tennessee and the Cumberland—were separated only by the low divide. In 1944, TVA had filled one of the valleys with the waters of Kentucky Lake. Barkley Lake would fill the opposite valley, leaving only a narrow, largely wooded and sparsely settled strip, between two massive manmade lakes. Together, the lakes would give new qualities to this unproductive strip. Under appropriate management, wildlife could abound within its boundaries and fish in the surrounding waters. Isolated coves and inlets along its 300 miles of shoreline would provide space for thousands of campsites to serve the millions of Americans looking to Federal lands for relief from the pressing demands of an industrializing society. The acquisition and restorations of the area's resources could provide valuable lessons in conservation education.

Executive approval from President John F. Kennedy in June 1963, and the subsequent Congressional endorsement through the Public Works Appropriations Act of 1964, initiated the national demonstration. The two major themes and areas of demonstration were to be outdoor recreation and environmental education.

One of the earliest construction projects at the Land Between The Lakes was the Youth Activity Station, a residential facility for environmental education. The complex was constructed to accommodate approximately 75 individuals in six dormitory-type cabins. A main dining and assembly hall was built, and an activity building with

sinks, work areas, and storage space rounded out the educational complex. Completed in the spring of 1966, the Youth Activity Station was to provide residential facilities for formal education groups studying environmental and conservation concepts, and a broad range of activity areas for such study.

Prior to completion of the Youth Station facility, TVA hired its first environmental educator. Initial duties were to establish the Youth Station as a main focal point for residential environmental education programs, to identify and develop the educational resources of the 5,000-acre tract designated as the Conservation Education Center, and to identify additional staff to assist with these projects. In accomplishing these early tasks, TVA found that several patterns emerged as precedents directly affecting its future activities in environmental education.

A major early decision concerned user groups. What groups would most appropriately be identified as targets to be approached and encouraged to use the facilities? The usual tendency, to place priority on quantity (to fill the facility), rather than quality (to maximize use through careful selection), was present. However, recognition that such action is difficult to correct, once instituted, resulted in the wise decision to limit use of this facility to formal education groups. Most of these were viewed as public school groups seeking residential experience in environmental education. Groups other than formal education groups, or formal education groups with other interests, were directed where possible to other and more appropriate facilities or accommodations.

This decision proved to be a major factor in the success of the program. The facility thereby gained a reputation as a center for educational activities. This provided a sound basis for working with school administrators who might have envisioned the project as primarily recreational—an area interesting to visit, but of no real educational value. The most skeptical administrators, when visiting the facility, were convinced of its educational merit. They were able to see the motivational influences of the facilities and to witness the learning processes.

A second precedent was set with respect to the use of staff as field teachers for the students in residence at the Youth Station. TVA's role in environmental education is that of a supportive resource to the educational communities. The purpose is not to replace the educational function of the schools. TVA staff consequently focused its attention on assisting the educator, the teacher, in preparing to conduct the activities. To remove the teaching role from the teacher would be to assign to him a role of spectator and thereby to lose valuable insight into individual student needs, and to lessen the chances of followup activities back in the classroom. As a result, TVA staff did not work directly with the students in residence.

The assumption of responsibility for programming by the school systems tended to make the residential program a more formal part of the school curriculum. As opposed to an added field trip or outing, the residential experience became an essential element in the instructional processes, and frequently became an annual or semiannual occurrence with many groups. The success of such programs prompted several groups to move into more formalized activities. The development of system-wide curriculum guides and intra-system training programs for teachers by other teachers, and the involvement of high school youth with younger children in residence, are examples. The success of this approach, as opposed to TVA's providing a pre-determined curriculum guide or field instruction by staff, is evidenced by the steady use of the facilities and the voiced approval of this method by the educational community. This concept of TVA providing assistance to teachers with programming rather than directly teaching the students has been maintained as TVA policy.

As use increased at the residential facility, other facilities in the Conservation Education Center were planned and implemented. Center Station, originally an information and office structure, was renovated for use as a major interpretive center. In August 1967, with restoration and construction complete, an observation platform overlooking the Youth Station and Lake Barkley atop an abandoned silo was formally dedicated as Silo Overlook. In February 1969, Empire Farm, a major educational facility, was completed. The farm complex consisted of the farmhouse, which contained tools, artifacts, and farm equipment from earlier times; several barns housing the typical farm animals; and other outbuildings for large farm equipment, both old and new. It was designed to give students exposure to several farm practices. Close contact with the animals allows visitors and students to examine the specialized characteristics and benefits of the domesticated species.

An extensive trail system was built throughout the 5,000-acre Conservation Education Center. The trails, like the facilities, were designed to be both demonstrative and functional and ranged from paved surfaces for the handicapped through longer, primitive, hiking trails to special audio trails that have recorded interpretive messages. By the late 1960's the major facilities within the Conservation Education Center were completed, and the name of the area was changed to the Environmental Education Center.

With the focal point of activity in the Environmental Education Center firmly established, the scope of environmental education expanded to include numerous other areas, both inside and outside of Land Between The Lakes. Expansion of the environmental education programs led to establishment of contacts with several groups and land bases beyond the boundaries of Land Between The Lakes. Initially, assistance was confined to establishment of outdoor laboratories and school sites for environmental education. Gradually, the scope of the activities increased to include cooperative programs and projects with school

systems and civic groups in all seven states of the Tennessee Valley. Contacts and programming with state departments of education and Federal agencies were major achievements during this period.

In September 1969 TVA and the 13 northwest Alabama school systems began to establish the concept of a regional educational consortium for environmental education. The result emerged early in 1972, and as described to TVA's Board of Directors, "The purpose of the project is to introduce environmental education programming into the schools in the Bear Creek watershed, with professional leadership experienced in program planning and development." TVA provided financial assistance for the first 16 months. Assistance from TVA staff also included initial organization and identification of qualified staff. Additional and subsequent funding was provided by the participating systems based on a fee per pupil and standard cost for membership. Additional funding was successfully solicited through the Environmental Education Act (P.L. 91-516) and local sources. The Bear Creek watershed is currently operative and has maintained the original staff. This early experiment with independent school systems organized into consortia for environmental education was to provide a successful model upon which TVA patterned one of its major program components.

Until the early seventies, TVA's environmental education program had been centered primarily in the Land Between The Lakes. With the national impact of the environmental education movement, more divisions within the TVA structure were becoming involved in environmental education activities. To eliminate duplications of efforts and to provide close coordination, a TVA Advisory Council for Environmental Education was formed. The membership consisted of division directors and staff with environmental education activities. This Advisory Council, which is still viable, reviewed the progress and addressed the need for additional program development on a periodic basis.

The decision was next made to establish a formal, Valley-wide environmental education program. This program was to be housed in a single division within TVA, but would maintain responsibilities for environmental education within all divisions. This unit was implemented in the fall of 1974, in the Division of Forestry, Fisheries, and Wildlife Development in Norris, Tennessee. In addition to the staff of the new unit, existing staff was maintained at specific program sites, such as Land Between The Lakes.

From the Valley-wide perspective of environmental education, two major program components evolved. One component, the Regional Environmental Education Development Project, would focus on the establishment of regional consortia and on programs with formal educational groups. The second component, the Regional Environmental Interpretive Development Project, would focus on the nonformal programming aspects of environmental education.

The Regional Environmental Education Development Project was designed to systematically develop a network of environmental education consortia through the Tennessee Valley region. Ultimately, this project will generate 12 to 15 consortia that will collectively span the Valley. The geographical objective is to have at least one consortium within 50 miles of any Valley resident. National demonstration of the effectiveness of such an implementation process is also an objective. The general method of implementation will follow the pattern of the Bear Creek watershed consortium.

In designated areas, superintendents of the school systems agree to the implementation of environmental education on a high priority basis. A description of the major program activities, plan for implementation, and plan for establishment of a self-sustaining consortium are prepared and presented to TVA. Once the plan is accepted, TVA and the consortium enter into a letter of agreement which delineates the assistance to be provided by TVA and the time frame for implementation of programs by the consortium. A full-time coordinator for environmental education is hired by the consortium to implement the designated programs. Common program thrusts are teacher-training programs, school site development activities, materials and resource identification, and collection and curriculum development in environmental education. TVA's environmental education staff maintains liaison and provides supportive services to the consortium. TVA lands and facilities are also made available for use, and occasionally major construction or renovation of such facilities is made to accommodate the consortium's program. Currently the Regional Environmental Education Development Project has generated a consortium in northwest Alabama, upper east Tennessee, southeast Tennessee, and west Kentucky. The remainder of the consortia, focusing on regional schools or universities, will be implemented by 1985.

The Regional Environmental Interpretive Development Project was designed to generate programs for the nonformal component of TVA's environmental education program. TVA lands and facilities are visited by millions of people annually. Programs for these individuals range from traditional natural and historical interpretive activities to development of major sites for nonformal use. Examples include the renovation of a 1908 powerhouse into an interpretive facility emphasizing energy use, generation, and conservation; a reproduction of an 1850 era farm complete with structure, crops, and tenants; and extensive trails systems throughout public-use lands and designated Small Wild Areas managed by TVA. Whenever possible, such activities are developed in conjunction with the organized consortia, thereby allowing use by formal and nonformal groups.

The current status of environmental education within TVA is one of growth. Valley-wide plans for implementation are being well received and the established facilities, such as Land Between The Lakes, continue to grow in use and popularity. The status within the structural framework is unique. The environmental education unit is charged with responsibilities that cross divisional lines, allowing for widespread involvement and utilization of TVA staff

and resources. It is a program that is fundamental to the edification of the Valley populace through a valid educational process. It is this validity that protects the integrity of the program, and prevents the environmental education effort from being interpreted as a public relations or propaganda ploy of a Federal agency. A quality program in environmental education will reflect favorably on the agency; however, this benefit is considered secondary to the benefits to the Valley populace. With the current level of activity and continued demonstrations of successful programming, the environmental education program of TVA will be assured of continued productivity.

Target Audiences of Effort

Primary targets for TVA's environmental education program are the individuals residing in the Tennessee Valley region. Since a major program goal is to provide exemplary programs for the nation, TVA's interests are broad-ranging and are not restricted to any one geographical area. For an overall identification of target groups, TVA recognizes the designations of formal and nonformal audiences as identified in the UNESCO International Environmental Education Workshop at Belgrade, in October 1975.

The principal audience of environmental education is the general public. Within this global frame, the major categories are:

1. The formal education sector: including preschool, primary, secondary, and higher education students as well as teachers and environmental professionals in training and retraining.
2. The nonformal education sector: including youth and adults, individually or collectively, from all segments of the population, such as the family, workers, managers, and decision-makers, in environmental as well as non-environmental fields.

Funding for Environmental Education

As with most Federal agencies housing programs in environmental education, TVA annual budgets are congressionally appropriated. Appropriations are based on a wide range of criteria. Currently, TVA's budget provides for nine professionals on the environmental education staff. Assisting these professionals, mostly in a facility support role, are twelve technical aides. Both facility support and development funds, as well as programmatic funds for such activities as the regional environmental education cooperative, are also included in the budget for implementation of environmental education. Since TVA does not have a grant program for environmental education, the support activities requiring financial

contributions from TVA are contractually negotiated. Such contracts are currently in effect with individual consultants, other governmental organizations, colleges, universities, and regional cooperative and private vendors, and encompass an assortment of environmental-education-related services.

Products: Publications Relating to Environmental Education

As most of the efforts of TVA's environmental education program have been service-oriented, relatively few publications relating specifically to environmental education are available. Those available are a bibliographical booklet on general materials and publications in the field of environmental education and thematic booklets such as "Guide To School Site Development For Environmental Education." From the total agency perspective, however, there are numerous publications that are environmentally oriented and are adaptable to programs for both the formal and nonformal audience. A total listing of TVA's environmental publications is available from TVA's Information Office in Knoxville, Tennessee.

Measures of Success and/or Lack of Same

No major external evaluation of TVA's environmental education program has occurred. Internal evaluations occur annually with respect to total number of student-days and person-days attributed to the program efforts. These numbers are compared with the long-range criteria for environmental education to yield a general measure of success.

Future Plans

In addition to the systematic expansion of the Regional Environmental Education Development network with public schools and the Regional Environmental Interpretive Development network on TVA lands and facilities, a third network is undergoing implementation. The university cooperative network is composed of universities in each of the seven TVA states. TVA will assist each university in the establishment and staffing of regional centers for environmental education. The functions of the centers will include:

- a. Preservice teacher training
- b. Program development
- c. Research
- d. Assistance to regional cooperatives and similar environmental education efforts.

Future plans for TVA's environmental education program also include expansion of the energy education component of the environmental education program and full implementation of Youth Conservation Corps and Young Adult Conservation Corps activities.

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December 30, 1977

UNITED STATES WATER RESOURCES COUNCIL

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Basically, the role of the U.S. Water Resources Council (USWRC) is one of coordinating water resources policy matters within the Executive Branch of the Federal government, conducting the National Assessment of Water, providing water resource planning grants to states, providing for Title II river basin commissions, and the like. The Council staff is small--less than 40 clerical and professional staff members.

Members of the Council include: Secretaries of Agriculture, Army, Commerce, Housing and Urban Development, Interior, and Transportation; Administrator of Environmental Protection Agency. Observers include: Attorney General; Director of Office of Management and Budget; Chairmen of Council on Environmental Quality, Tennessee Valley Authority, and Basin Interagency Committees; Chairmen and Vice-Chairmen, River Basin Commissions.

The Council has no defined responsibility in the area of environmental education. Any organization concerned with environmental matters does, of course, from time to time find itself educating individuals or groups in some way. However, we have no publications or pamphlets which are primarily intended as educational material, nor do we contemplate any at this time.

—Submitted by:

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October 17, 1977

VETERANS ADMINISTRATION

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The Veterans Administration (VA) does not have environmental protection and environmental education as a principal responsibility. Although we are a member of FICE with representation on several FICE subcommittees, we are not a member of the Subcommittee on Environmental Education (SEE).

Because of the VA's size (second only to the Department of Defense in number of employees) and the unprecedented number of trainees in our education and training programs, the VA has a significant impact on environmental protection and energy conservation. For example, in our hospitals and other plants and buildings, the VA is, we believe, among the leaders in the environmental protection and energy conservation effort. In our educational programs, notably the current G.I. bill, the VA has sponsored the training of some 7 million veterans since 1966. In addition to those trained on-the-job, through apprenticeships, or in vocational institutions, some 60 percent have trained in institutions of higher learning across all academic and professional levels. These programs have thus provided a pool of trained manpower of hundreds of thousands with the basic knowledge and skills from which environmentalists of all levels are drawn.

---Submitted by:

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December 2, 1977

SUBCOMMITTEE ON ENVIRONMENTAL EDUCATION FEDERAL INTERAGENCY COMMITTEE ON EDUCATION

Federal Interagency Committee on Education
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Created by Executive Order of the President in 1964 and operating under a revised Executive Order issued in 1974, the Federal Interagency Committee on Education (FICE) is chaired by the Assistant Secretary for Education, U.S. Department of Health, Education and Welfare. Under the auspices of FICE, the Subcommittee on Environmental Education (SEE) was established in January 1975, with 17 federal government agencies represented at the initial meeting.

The Subcommittee thoroughly considered an array of proposed needs, objectives, and tasks that it might address and decided that its first effort should be preparation of a coherent series of concepts about the environment that citizens must understand in order to think intelligently about and act responsibly toward their environment. It was agreed that Subcommittee members would develop the proposed series of concepts, rather than contract for preparation of a document, so that they would share their basic philosophies about education and environment and so that all members could keep the content of environmental education in a holistic perspective.

Accepting the thesis of the National Environmental Policy Act that human needs can be harmonized with ecosystem processes to achieve environmental quality, representatives of some 25 federal government agencies worked diligently and intensively to create an integrated, comprehensive scheme of basic principles concerning Earth's environment and human use of it. After completing several drafts of the proposed document, the Subcommittee invited a panel of ten widely recognized experts to a seminar to take a critical look at the work. The panel included men and women from the fields of biology, botany, chemistry, geography, general systems theory, futurism, ecology, economics, and sociology. Recognizing that the Subcommittee's work was a pioneering effort, the panel helped make several significant modifications in the document.

Entitled *Fundamentals of Environmental Education*, the document was published by FICE in November 1976 and was widely disseminated. Copies are available from the FICE office or through ERIC (ED 133 296). As stated in the introduction, the framework of fundamentals is:

"...intended to help individuals and groups understand the environmental issues of today and tomorrow; develop realistic environmental, social, and economic goals; set priorities for reaching those goals; and make rational decisions about environmental issues."

The introduction goes on to explain

"The Subcommittee used the principles of the science of ecology as a means for integrating and organizing relevant constructs from the social, behavioral, physical, biological, environmental design, and legal disciplines into a coherent framework for fundamentals about environment. Some nontraditional bridges have been used among these disciplines to improve communication and integration of ideas, techniques, and information.

"A functional grasp of the fundamentals concerning the operation of ecosystems assists citizens in obtaining a clear, systematic, scientific, dispassionate picture of the world around them. This framework is designed to help achieve that capability for understanding, coordination, and action necessary for a balanced approach to improving environmental quality....

"The framework is divided into four sections: the first states the natural principles about the operation of all Earth's ecosystems—man-created and natural; the second contains fundamentals about the functioning of the human species (as an unusual one) in Earth's ecosystems; the third describes processes, methods, and tools for using the fundamentals to harmonize human activities in Earth's ecosystems; and the fourth gives examples of broad questions that individuals and multinational groups alike must address and solve if the quality of human life and civilization is to be maintained on Earth."

It was and remains the intent of the Subcommittee to use *Fundamentals of Environmental Education* as a basis for identifying duplication and gaps in environmental education activities of federal agencies. The Subcommittee would then recommend ways and means of remedying those gaps and improving coordination of programs.

Another major activity conducted under the auspices of the Subcommittee was preparation for the Intergovernmental Conference on Environmental Education that was held on Tbilisi, Soviet Socialist Republic of Georgia, October 14-26, 1977. A task force on International Environmental Education was established in December 1976 under the leadership of Alexander Barton, who organized the efforts of some 70 environmental education leaders from federal and state governments, industry, academia, and nongovernmental organizations. The task force invested considerable talent and time in reviewing materials, developing proposed positions for the U.S. delegation to the conference, and suggesting for consideration by the Department of State the nature of the United States delegation. The result of these efforts was that the 16-member United States delegation went to the Intergovernmental Conference with a set of officially sanctioned positions to present,

knowledge of the often diverse views of United States groups and individuals concerned with environment and education, and multiple copies of environmental education materials for distribution.

Head of the United States delegation was the nation's chief education officer, Dr. Mary F. Berry, Assistant Secretary for Education, U.S. Department of Health, Education and Welfare. Sixty-six member states of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) sent official government delegates to the conference. Also in attendance were observers from two nonmember states, eight other United Nations organizations, three intergovernmental organizations, and twenty international nongovernment organizations. Each formal action—and there were 41 recommendations adopted—was the result of official votes of delegates from the member states. As such, they constituted formal international decisions to be reported back to member governments, the General Conference of UNESCO, and the Governing Board of the United Nations Environment Program.

The Subcommittee on Environmental Education has taken on part of the responsibility for follow-up in the United States on the recommendations of the Intergovernmental Conference. A report on the conference has been prepared and will be available from the FICE office by April 1, 1978. It contains a digest of the recommendations adopted at the conference and presents a discussion of the implications of those recommendations and conference deliberations for education in the United States.

With major assistance from the ERIC Science, Mathematics, and Environmental Education Analysis Center at The Ohio State University, the Subcommittee has completed compilation of a 173-page document entitled *Environmental Education Activities of Federal Agencies*. This work contains descriptions of the environmental education objectives, activities, programs, accomplishments, and plans of some 40 federal agencies. It includes information from several agencies that do not maintain membership on the Subcommittee. Compilation of this volume is the first step toward identifying gaps in environmental education coverage at the federal level. It is the most complete, single-source reference available on federal agencies' activities in environmental education.

The FICE Subcommittee on Environmental Education does not operate programs. It does not have staff. Its work is accomplished largely by members taking time from their regular jobs to serve the broad purpose of advancing the interests of environmental education. As stated in its authorization and mission statement, the purposes of the Subcommittee are:

1. To identify the Nation's environmental education needs and goals, and to promote an understanding of the processes involved in the interaction of natural and human ecosystems.

2. To advise and make recommendations on educational policy, programs and commitment relating to environmental education, to the parent FICE and, through it, to the Secretary of Health, Education, and Welfare, the heads of other agencies, and to the President.
3. To improve cooperation, coordination, and avenues of information exchange among Federal agencies in meeting the Nation's environmental education needs and goals.
4. To establish linkages and promote a ready exchange of concerns among the various FICE members and nonfederal groups in order to foster and encourage the development of a national strategy on environmental education, and to assist and stimulate bilateral and multilateral environmental education efforts among nations.

Among the specific initiatives on which the Subcommittee has work underway are the following:

1. Task Force on National Strategy for Environmental Education

The work of this task force is to analyze all recommendations and other material emanating from the Intergovernmental Conference on Environmental Education and plan for follow-up action, including preparation of input for the Department of State in follow-up efforts with UNESCO and UNEP on environmental education programs. A draft paper on Perspectives on a National Strategy for Environmental Education has been prepared.

2. Task Force on Environmental Education for Federal Government Employees

The work of this task force is to determine the kinds and levels of environmental training federal government agencies are providing for employees and then devise an action plan for incorporating environmental education into curricula at government training facilities and encouraging agencies to provide environmental education for employees.

3. Environmental Education Materials Fair

Arrangements will be made for printed and audio-visual environmental education materials produced by all federal agencies to be on display for several days with agency representatives available to provide information about the materials. Bibliographic, cost, and availability information on each item will be compiled and published.

4. Task Force on Energy and Environment

The work of this task force is to prepare a supplement to the *Fundamentals of Environmental Education* that would deal specifically with basic principles of energy and methods of harmonizing human energy use with ecosystem requirements to achieve environmental quality. A draft document has been prepared.

5. Task Force on Ethics, Values, and Environment

The work of this task force is to prepare a supplement to the *Fundamentals of Environmental Education* that would deal specifically with environmental values.

6. Task Force on the Built Environment

The work of this task force is to prepare a supplement to the *Fundamentals of Environmental Education* that would deal with principles of interactions among ecosystems and humans as components of ecosystems.

7. Consultive Assistance to Subcommittee Member Agency

The purpose of the consultation would be to pilot use of the *Fundamentals of Environmental Education* as a benchmark for improving an agency environmental education program.

At its regular meetings, the Subcommittee will continue to deal with its prime responsibility of improving the cooperation, coordination, and exchange of information on environmental education among federal agencies as well as developing recommendations on federal policy and programs.

The current membership of the FICE Subcommittee on Environmental Education is listed on pages 164-167 of this volume.

--Submitted by:

Walter E. Jeske, Chairman
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February 15, 1978

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